FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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## Oniginal Connespondence.

AN OPPORTUNITY FOR COLLIERY REFORMS.

re are few who with the opening of a new year are unaccus are are few who with the opening of a new year are unaccused to glance at the past to see in what way its experience may set improvements as to the future. Now and then current events, rell as passing time, are favourable to such reviews. A happy bit action of time and things is just now, we think, noticeable in important mining district of South Staffordshire and East Worershire. There are those who would not so look upon what is being there, but they take too gloomy a view of the situation. Year of grace one thousand eight hundred and seventy two will many changes even as December in the year that so recently exyear of grace one thousand eight hundred and seventy two will namy changes, even as December in the year that so recently exit and alterations of which January little dreamt. Nor is it to aid that all these alterations have been to the disadvantage of employer, though the employed have been the most benefited imitally. And it is to matters affecting the relationship of mastermen that we are now addressing ourselves. Let us believe that ture of much hopefulness yet lies before employers and employed at anoient coal basin; indeed, if both be wise, that future may nee he entered upon. be entered upon.

hat ancient coal basin; indeed, if both be wise, that future may not be entered upon.

has been many years since so numerous a meeting of colliery protors and colliery lessees was held as that which came off in Birgham on Thursday, last week. Nor at any other meeting within at years has the relation between master and man in the collieries o more fully discussed. It originated in the application of the to have the nine-hours adapted to colliery work. Whilst that ch has, not infelicitously, we think, been termed "the nine-hours lemic" is affecting other districts, it is hardly surprising that it uld attack the colliers in South Staffordshire, a district in which as been adopted in many of the leading manipulating and concitive industries. But, however applicable it may be to other trades taffordshire, and even easier hours to collieries in some other distantional many in the leading manipulating and concitive industries. But, however applicable it may be to other trades taffordshire, and even easier hours to collieries in some other distantional many in the colliery are from 6 to 6, and, allowing hours for dinner, are therefore eleven hours a day. Yet the Staffordshire colliers do not work 54 hours a week, or even 51. It is ply nonsense to talk of nine hours a day when men work scarcely it he week. Very little more than half time is the average workperiod of the Staffordshire miner. No one will, therefore, be surational, after well discussing the application, and remembering great difficulty that is being experienced in getting enough fuel arry on the blast-furnaces and the finished ironworks in their discussing the application, and remembering the intending of the staffordshire men had no claim to the nine hours, and its concession would be prejudicial to the interests of both sides. We very tree to ask if this very application does not afford the its concession would be prejudicial to the interests of both sides, we venture to ask if this very application does not afford the oyers an opportunity of freeing themselves from shackles that hampered them for long years past, and that were never felt to ore impeding than they now prove?

Iliery proprietors in Yorkshire and Lancashire must feel for comperer in Staffordshire when they call to mind that wages

compeers in Staffordshire when they call to mind that wages at district are paid as well in ale and coal as in money. With-he interposition of the butty-collier such a practice would be to impossible. To him the habit may not be objectionable, but

the interposition of the butty-collier such a practice would be to impossible. To him the habit may not be objectionable, but the mining engineer and the mine proprietor it is next to intoler—It originates endless disputes, is destructive to discipline, if it not produce disorganisation, and the subsequent recklesness tleads to frequent accidents as well by day as by night. Why, last notable accident in the district, which took eight lives, and a pit, was immediately connected in its fatal issues with the custoff drinking in the pit. The poor fellows were all found lying and their half empty ale-bottle, dead where they lay down to sleep thus supping. Although it was night yet sleep had become urgent because of the nature of their repast, and sleeping they all too unconscious of the fire, whose developed gases poisoned into the sleep of death. The quality of the drink never satishe men, who characterise it as "wobble," and the coal supplied hem is never good enough, or is unduly withheld.

Here can be no doubt that the men when they asked for the conton of the nine hours meant that their pay should be an alterain the existing terms by which they should be an alterain the existing terms by which they should be an alterain the existing terms by which they should be an alterain the existing terms by which they should be an alterain the finished usually early in the afternoon, and the men make on verage a day and a half every day they work. The present is in the Thick coal are 5s. a day. Thus a pikeman may constly look to earn 7s. 6d. a day in money, and the allotted quantof ale and coal. It cannot, therefore, be said that the Stafford-colliers have much cause for complaint in the matter of wages, they are learning to discountenance strikes; and though in y to their masters' resolution they have many of them sent in ces that they shall leave off work in a fortulght, yet it is not beded that if they are not flatly refused all concession they will turn. d that if they are not flatly refused all concession they will turn They do not all ask for the same terms, but it is needful that ar as possible one scale of wages should prevail, as now throughall the Thick coal district, and another throughout the Thick list to both the same hours should apply. They were the Thick I men chiefly whose application was considered at the Birmingmeeting. Since then the Thin coal men have determined upon morialising their employers for shorter hours, and they have applied deputations to appropriate the memorials.

morialising their employers for shorter hours, and they have apinted deputations to support the memorials.

Are there not here all the elements that rightly used would result
the adoption of a system of concilliation and arbitration by which
"allowance drink" and the "allowance coal" may be made to
low the abandonment of truck, and by which regularity of work
ring shorter diurnal periods may result in a considerable increase
the time wrought, and a notable addition to the quantity of minebrought to bank? Already certain leading masters have expressed
masives as not unwilling to adopt even the nine hours if they could
guaranteed regularity of work by the men during nine stated
mrs every day. With eight hours prevailing in South Yorkshire
must be anticipated that some more regular and some more "adneed" system than now prevails must soon, be brought about in
uth Staffordshire. We trust that in that district men and masters

will alike review their position, and come amicably to such a re-arrangement of terms as shall at once promote the prosperity and the safety of mining there.

IRONWORKS AND COLLIERIES IN YORKSHIRE SHARLSTONE, THE DEEPEST COLLIERY IN YORKSHIRE.

Up to a month or two ago Denaby Main, near Mexborough, enjoyed the reputation of being the deepest coal pit worked in Yorkshire, but any honour connected with such a circumstance has been taken away, and transferred to the western part of the Riding, although, singular as it may appear, the principal shareholders in the one undertaking are largely interested in the other. The Sharlstone Colliery, situate about three miles from Normanton, and one mile from the rail way station and village from which the name is derived, is one of the finest in the district, and in many respects is unique, more particularly with regard to the underground workings and the machinery both at the top and bottom. The drawing-shaft (which we went down) is not a vertical one to the bottom, so that there are two liftings to the surface from the lowest seam. The first bed is to the Stanley Main, distant from the surface 335 yards, and then from that there is an entirely distinct shaft 175 yards lower to the Haigh Moor seam, making the total depth 510 yards.

The general appearance of the top of the colliery shows that everything has been done, and every necessary appliance brought into requisition for doing a large business by the most approved and econo mical methods. The head gear is of stout pitch pine and English oak, strengthened in every way, 36 ft. high, the pulleys being 15 ft. 2 in. in diameter. The ropes are of fine wire, working single-decked cages, the actual strain or weight at each draw being about 6 tons. The engine-room in which are the drawing-engines is a model of cleanliness. The engines are of 80-horse power, with a 17-ft, drum for the rope, the motive-power being supplied by five double-flued boilers, 35 ft. in length and 6 ft. 6 in. in diameter, with patent Galloway tubes. In another place are fixed a pair of small engines to which a cage can le attached, and be speedily rigged for going direct to the bottom seam, and so bring out the men in the event of any accident occurring—a precaution the wisdom of which cannot Up to a month or two ago Denaby Main, near Mexborough, enjoyed

accident occurring—a precaution the wisdom of which cannot be over-rated.

The various workshops are all large and well ventilated, fitted up in the most complete manner, and include a saw-mill, worked by a 13-borse power engine, where the necessary timber for propping, &c., is cut up. In connection with it there is also a carpenter's shop, 49 ft. long and 39 ft. wide, where the wagons are repaired, and even made, with the exception, we believe, of the wheels and axles. The blacksmiths' shop is a fine room, 20 yards long by 15 yards in breadth, with four hearths, having a drilling-machine, lathe, and, we believe, a small steam-hammer. All the shops, offices, &c., at the top are lighted with gas made on the premises, whilst the bottom of the pits are supplied with it by means of Huntress, Wilson, and Co.'s steam-jet, which diffuses a brilliant and uniform light, and, as the manager informed us, worked admirably. There is a very fine stack at a convenient distance from the shafts, being 47 yards in height and 15 ft. in diameter at the bottom.

After visiting the lamp-room, close to the top of the drawing-shaft, we descended to the Stanley Main, at a distance, as before stated, of 335 yards. The seam named was worked up to the time of the Haigh Moor bed being reached, but is not now, as the other is by far the most valuable. The Stanley bed, however, is about 9 ft, thick, and gives about 5 ft, of clear coal, as follows:—

Coal-Bisckband 1 6
Dirt. 1 9
Coal-Lime 2 0
Dirt. 1 9
Coal-White side 9 2 0
Coai-Best Total thickness of scam 9 1 t, which occupied

from the Haigh Moor to the Stanley pit, is 17 ff, wide, 72 ft. long, and 15 ft. high. The place over the shaft for the working gear is 32½ ft. high, 20 ft. long, and 17 ft. wide. On a raised and very solid platform are a pair of very fine borizontal engines, by Bradley and Craven, of Wakefield, each being of 40-horse power. The drum is 13 ft. in diameter, with a round wire-rope, and 700 tons a day can be drawn from one seam to the other. The foundations for the engines are such as are not often met with, from their great solidity, whilst it is evident great difficulty must have been experienced in transcriber the heavy material, from the top to the better.

porting the heavy material from the top to the bottom. Some of the stones used in the foundations are upwards of 6 tons in weight, whilst the arch consists of a thickness of seven bricks. There are the other appliances for enginework, whilst the engines are in excellent condition, and this part of the workings in particular is well

cellent condition, and this part of the workings in particular to worth visiting.

About 20 yards to the west, and 40 yards to the north, of the engines there is the boiler-room. The place is as yet incomplete, there being only two ordinary egg-boilers at work, being about 32 ft. long and 4 ft. in diameter, and fed by a pipe from behind the tubbing in the shaft, the water being brought from a point about 30 yards from the surface. The foundations, however, for two more boilers have been nearly completed, and they will be placed alongside the others when all is ready. Not far from the boiler-room is a blacksmiths'

shop, where all the necessary work for the colliers working in the bottom is performed, so that there is a great saving in time effected, as the picks are sharpened almost on the spot, instead of, as at most collieries, being sent to the top. The ventilation is obtained by the ordinary furnace means, and about 120,000 cubic feet of air passes 

pleased to have the control of the c

### IRON TRADE OF NORTHAMPTONSHIRE.

IRON TRADE OF NORTHAMPTONSHIRE.

The past year has been the most eventful one in the history of the iron trade of the county of Northamptonshire, and from it may be dated a new era in the annals of that industry which will make the county one of the most important in the kingdom. Up to some three or four years ago Northamptonshire was almost a terra incognita, until brought into its actual worth and importance by a series of notices from one of the special correspondents of the Mining Journal. Since, then, however, the ironstone found in all parts of the northern division of the county has attracted the notice of capitalists, and the new year opens with the brightest prospects so far as regards the development of the valuable beds of ore which permeste nearly the whole of the county. The manufacture of pig-iron will also be very largely increased during the present year. In 1869 the quantity of ironstone raised in Northamptonshire is given by Mr. Hunt, the Keeper of Mining Records, at 540,259 tons, but we have the best reasons for knowing that the figures given full short of the actual tonnage raised by at least 100,000 tons. During the latter part of the year just closed Messrs. Butlin and Co., in addition to keeping three furnaces of their own going, have been sending away something like 3500 tons of ore to the North of England, whilst the quantity raised in the county during the year will in all probability be found to exceed 700,000 tons.

The Glendon Company, whose works are about three miles from Wellingborough, have had three furnaces in blast during the greater part of the year, and have also sent a very large quantity of stone into Derbyshire and Yorkshire, via the Midland. On the same route of railway it is proposed to open out the Neville-Hotte property, near Market Harborough, which abounds with excellent ironstone, a com-

part of the year, and have also sent a very large quantity of stone into Derbyshire and Yorkshire, via the Midland. On the same route of railway it is proposed to open out the Neville-Holte property, near Market Harborough, which abounds with excellent ironstone, a company having been formed for the working of the minerals and the creeting of the blast-furnaces. Near to Thrapstone, on the London and North-Western line, new furnaces are also about to be erected, and the ore in that very important district more energetically worked than it has yet been. On the estate of the late General Arbuthnot, where some of the richest stone in the county has been found, preparations are also being made for more extensive working. Islep also promises to become an important locality, as it is said that Mr. Plevins, of the Heyford Ironworks, and some other gentlemen, are about to open out the minerals there, and start some blast-furnaces. On the southern side of Northampton an increased trade will be done during the year at Duston and the neighbourhood, whilst at Blisworth, Gayton, and from there to Weedon, there will be a large increase in the trade, as there is at present a demand for more stone for Staffordshire and South Wales than is being raised. Mr. Plevins has had for a considerable time three furnaces in blast at Heyford, near Weedon, and there is a ready market for all that is produced. In the neighbourhood of Daventry and Rugby there is now every prospect that the mineral deposits will be tapped during the present year, whilst in the adjoining county of Oxford, at Banbury, a large increase in the output of ore is sure to take place, more especially by the company of which Mr. Rosaby is the chief.

prospect that the mineral deposits will be tapped during the present year, whilst in the adjoining county of Oxford, at Banbury, a large increase in the output of ore is sure to take place, more especially by the company of which Mr. Roseby is the chief.

Judging from what is proposed to be done, there is every reason to believe that the tonnage of ironstone raised during 1872 will not fall far short of 800,000 tons, and the production of pig-iron may be taken at 55,000 tons. Seeing that it is only about 18 years since ironstone was raised in Northamptonshire, and any attempt made to produce pig-iron in the county, the above facts cannot be otherwise than gratifying to all engaged in the development of the minerals of a county which at one time was supposed to be entirely free from anything at all calculated to find other than agricultural employment for its inhabitants. Much of the success, however, is undoubtedly due to one man, Mr. W. Butlin, who may be styled the father of the iron trade in Northamptonshire, and who for many years spared neither time nor money in making known the value of the Northamptonshire ore, said who is now, we are glad to say, reaping no inconsiderable advantage for his spirited enterprise, and in which many others are now participating. In manufactured iron an excellent business is being done in railway alcepere, atovez, grates, kitchen-ranges, &c., and there are very large orders in hand for the new year.

## Royal School of Mines, Jermyn Street.

LECTURE XII.—We now (said Mr. SMYTH) begin to approach the point when we must have recourse to some kind of preparatory operations before we commence mining on a larger scale. We have already passed under review the facts connected with the distribution of the valuable materials, and you have seen that it is only here and there, where what may be called bunches of ore are found, or that metalilizerous deposits can be expected near the surface of the ground. It is true that some ores generally make up to the surface, so as to be touched by the plough, or they may be cut into by draining; but the lodes are generally covered up by material or gossans, the condition of which is more or less indicative of change, so that we cannot expect to meet the lode in its unchanged state until we get down from 30 to 50 fms. We must, therefore, be indebted to exploratory trials to settle the quality and conditions of the lode. The gossans are valuable as indications of the nature of the lode. The gossans are valuable as indications of the nature of the lode. The gossans are valuable as indications of the nature of the lode. The gossans are valuable as indications of the nature of the lodes are also valuable as indications of the nature of the lodes. The gossans are for use. Where the precious metals are concerned, more care is required in dealing with gossans than in other cases. Where gold and silver are present in the lodes care must be taken against making fallacious experiments with the gossans. To avoid erroneous conclusions, samples of the material should be taken over the length, the breadth, and the depth of the ground, when, being well mixed, and divided, and auddivided, a fair sample is obtained for the sassayer, and all danger avoided for being ind satray by the occurrence of small riche being well mixed, and divided, and subdivided, and the depth of the ground, when, the substantial state of the ground when the depth and the riches were to be found in some:—that is to say, there will be a zone of comparative provert

in the state staff. From this year to 1800, at the inlines became deeper, the quantity of silver which the ores averaged was do 5 tolus to the 1ewt, of material raised. In 1820 it had increased to 7 loths, in 1850 to 8 loths, and in 1860 to 9 loths, which the mines continued to yield even at the great depth of 20 fms, distance from the surface. I was in that district last year, and the depth now attained is about 450 fms, with nothing to indicate any approach of powerty of ground.

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he water may drain, and from whence it may be pumped up. In particular districts, however, and in certain formations, thousands of yards may be driven without the intrusion of a drop of water; but when large quantities of water have to be encountered explorations and mining have their difficulties and their cost enhanced tenfold.

I must now place before you a few precautions which are necessary, irrespective of the character of the oros or of the country in which they are sought; and which it is necessary, even after the ore is found, to take into consideration before you can calculate the capital required, or attempt to raise any large sum of money for the work.

First, there are the questions from whom and on what conditions the mining ground is to be obtained, and for what leugth of term; or, in other words, whether under a short or a long lease. I have already dwelt enficiently on these points to show you their importance; and will proceed to the next—what power, if any, is at hand. Whether we can have water-power, which is cheapest or, if not water, or not enough of it, whether fuel—coal or wood—would have to be obtained at a distance, and what are their respective prices. Speaking enerally, so far as this country is concerned, there is in the hilly districts sufficient water, although it may have to be collected in reservoirs, and brought some distance. In Cardiganshire, near Aberystwith, for instance, there are cases where the water thus collected is carried from four to eight miles, and the mines there are worked in this way with great economy. It also must be recollected that the height from above the sea level as affecting the climate is important. Great difficulty arises in many instances from the continuace to from a continuace to the head of the from halve water is frozen up in October, and no more to be had until the thaw and spring. In such regions the water in the mines does not freeze, but continues to rise, and the outlets being frozen up it may drown out the miner. From circumstances of this

Reasons of this kind may render it better, even if the cost be greater; to use steam-power, as they almost invariably do in the South-West of England. In some countries the climate is so injurious to health that Europeans are compelled to remove to other localities during a part of the year—a circumstance to which when abroad the engineer must attach due weight.

The next point we must consider regards the means—on the Fells, in the carriage—whether by rond, canala, rallways—end on the communication or carriage—whether by rond, canala, rallways—end on the Fells, in the North of England, they you can doner places abroad mules are employed galloways; and may in, Mexico, and other places abroad mules are employed galloways; and may in, Mexico, and other places abroad mules are employed than they need to be, and, therefore, deposits of a poorer character can be worked to advantage, which formerly could not.

It is a matter of great importance whether or not suitable kinds of wood are attainable on the spot for securing the workmen, and keeping open the lovels by props. Fir or pine, good lareh and oak, are the most useful sorts of timber; and the cost of them, and the distance they have to be brought, are matters of importance. In some districts in Europe, as in Styria, where large smelting works are established, and in America, where the woods are near the rivers, timber for mines is foated down the stream very cheaply. In the Cornish mines, where cornmous quantities of timber are used, and where it is not to be had in the neighbourhood, they are entirely supplied from the Baltic, at an extermely reasonable cost of earliage.

Another question of prime importance is the wages of skilled and unskilled industry in the neighbourhood of the mine, and the proximity or otherwise of the dwellings of the workmen. You will find that in commencing a mine in remote districts this question of labour will be one of difficulty, and you will have to build harracks or dwellings of some kind on the spot, or much time and the proper

#### THE FORMATION OF MINERAL VEINS, LODES, &c. THE LECTURES AT THE ROYAL SCHOOL OF MINES,

SIB,—In last week's Supplement to the Journal a correspondent makes some observations under the above head, his object apparently being to show that all theories hitherto advanced on this subject are being to show that all theories hitherto advanced on this subject are fallacious. In referring to the aqueous theory he quotes a mineral lode which he saw projecting above the surface on a mountain in Wales, and asks how minerals could have been deposited by water in such a position. In reply I would remind him that this was not always a mountain. The Welsh hills were not formed by a process of elevation, but, on the contrary, geology teaches us that they are only the monuments of an older country, whose plain their summits represent. They exist, in many instances, simply through their having been better able to resist the action of denudation, by the superior hardness of their rock, &c., or through their being less exposed to its effects. At one time, previously to the removal of the overlying strata, the back of this lode, standing 20 ft. above the surface, was very probably many hundreds of feet below an ancient sea bottom. The argument that because there is at the present time no water in some of the deep mines of the Chili mountains therefore no water ever circulated in those veins cannot be maintained for a moment. It would be just as reasonable to contend that the summits of our English hills, because now some hundreds of feet above sea level. It would be just as reasonable to contend that the summits of our English hills, because now some hundreds of feet above sea level, have never been under water, whereas we find on them shells and fossils of marine fauna of the post pliocène period, proving that in a comparatively recent age they formed part of a sea bottom. Springs and subterranean streams of water are often known to alter their course, and in process of time occasionally to disappear. As to the fact of a spring of fresh water occurring in a copper lode, that is not very difficult to explain. Many veins are in reality large water-courses, being sufficiently open to allow free circulation to any water which may get in from the adjoining rocks. The rainfall on the outcrop of an open jointed or porous rock, (say) i mile from a vein, might follow the rock down towards the dip till, at a certain depth, it would be intercepted by the vein. This water-bearing rock having, perhaps, impervious strata overlying it, the water would be under great pressure, and would find its way up through the open vein in the shape of a spring or feeder, and would escape through every available opening. Owing to the short time the water could remain in contact with the copper ore, little or none of the latter would be taken into solution, and the spring referred to would be virtually a freshwater spring. In the lead mines of Denbighshire and Flintshire the miners know to their sorrow that the cross-courses running along the line of strike of the strata are simply reservoirs for large English hills, because now some hundreds of feet above sea level along the line of strike of the strata are simply reservoirs for large bodies of water which have found their way down through the lime

The circulation of water in an open fissure will not, per se, form a course of ore. Firstly, it must hold the ore in solution; and, secondly, the chemical constitution of the adjoining rocks, or the electro-magnetic condition of the vein itself, must be favourable for its deposition. The appearance alluded to by your correspondent of lodes having been in a state of fusion may be quite correct, and yet not interfere with the theory of their aqueous origin. They are from interfere with the theory of their aqueous origin. They are frequently, very long subsequently to their complete formation, exposed to igneous action, which may alter their physical character, and also that of the containing rock

that of the containing rock.

I never heard it suggested that metallic veins have been "vacuums"—i. a., spaces where there is neither air nor matter, and, of course, it would be impossible that a vacuum of any extent could exist in the crust of the earth, which is saturated with water, air, or gases of various kinds. But that veins were originally open spaces, or fissures, is very clear, or how could their contents, consisting frequently of pieces of shale, or of the superinoumbent strata, have been deposited in them? Mineral veius have generally been formed by the unequal subsidence or upheaval of large tracts of the earth's surface, and esimply mineralised faults. When the strata of a country are fractured throughout for, perhaps, miles in length, and on one side of the fracture are depressed to the depth of many fathoms, there must necessarily be portions of the vein, or fissure, thus formed, which are of greater width than others; the vein, in fact, at these spots bellies out, and at other points the cheeks will be in contact, and the lode is nipped out. This is owing to the primary fracture being irregular in its vertical course, on account of the variable texture and hardness of the strata through which it passes.

its vertical course, on account of the variable to the strata through which it passes.

The annexed diagram will, perhaps, show this more clearly. The dotted line, a b, represents the position of one of the walls of the vein at the time of fracture; a'b' shows the same wall after the subsidence of the ground on that side i.e., after the formation of the fissure; the

cavities, c, c, c, are subsequently filled in with mineral substances, and the lode is complete. As regards this subject not being discussed by practical men, I may remark that Mr. W. Smyth, who is a practical man of large experience in Cornish mines, has certainly propounded theories relating to the formation of mineral veins. No doubt, if our practical miners were better acquainted with the science of geology than they generally are the laws governing the distribution of metallic ores would have a very tribution of metallic ores would have a very much better chance of being understood. It is a forfunate thing for the progress of humanity that men are not dis-

posed in this age to let any "secret thing" alone, but, on the contrary, the greater the difficulties in comprehending them the greater the skill and energy called forth. It is this thirst for knowledge and radical enquiry that has led to the present colossal proportions of Great Britain's manufacturing and mining industries, for had not science come to their aid these could never have been developed on the scale we now see them.—Shifnal, Jan. 3. A. H. MAURICE.

#### DIVINING RODS-PROF. SMYTH'S LECTURES.

DIVINING RODS—PROF. SMYTH'S LECTURES.

SIR,—In one of the able lectures of Mr. Warington Smyth, reported in the Supplement to last week's Journal, Mr. Smyth made a statement which requires a rectification. Speaking about divining rods, the learned professor referred to a class of people who assert that they can discover springs by that aid, and included among them an ecclesiastic, who, said he, had formoney exercised that profession in France. Now, some 20 years ago a man gifted with high intellect, l'Abbé Paramelle, made it his study to discover hidden springs, and for 30 years, admirably employed, travelled throughout France, making money perhaps, but also rendering invaluable services to populations deprived of water. The life of this gentleman was so great a blessing to France that it would be a matter for regret if such a man was unknown abroad, and looked upon as an adventurer taking advantage of public ignorance and superstition.

Allow me, therefore, to tell you a few facts about him and his method. L'Abbé Paramelle never employed divining rods. The art of spring discovery, or hydroscopy, as he has created it—for he is its creator—has no connection with divining rods. This art rests entirely upon the study of the soil and the knowledge of the subjacent ground. Science is its foundation and guide, and magic has nothing to do with it.

to do with it,

Persons who may desire to be enlightened on this subject can read Persons who may desire to be enightened on this subject can read the book which the respectable ecclesiastic wrote towards the end of his life, when, after upwards of thirty years of work, travel, and experience, old age and disease forced him to rest. ("L'Art de Découvrie les Sources," I vol.: Dentu, Paris.) They will see that, if ever l'Abbé Paramelle referred to divining rods it was to illustrate their complete

Paramelle referred to divining rods it was to illustrate their complete inefficiency, and that his processes are as irrelevant to magic as geology and geognosy are at the present time.

You will, Sir, excuse me for the present letter. I study the science which l'Abbé Paramelle has founded. I purpose devoting myself to it, especially in Australia, where the want of water is severely felt. You will readily understand how anxious I am to place in its true aspect the character of the master for whom I feel so high an admiration, and, at the same time, remind the public that there is a science, exceedingly useful, emirently worthy of consideration, which must not be involved with the cheats of empiricism.

I will add that this art may sometimes be a useful assistance to

I will add that this art may sometimes be a useful assistance to miners, as mining operations are often checked by want of water, or disturbed by unexpected underground streams, that could be avoided by applying properly the principles of hydroscopy.

Linden House, Twickenham, Jan. 4.

LEON JOURD'HUI.

#### THE REGULATION OF MINES.

SIR,—The time is drawing near when the Mines Regulation Bill will be introduced and considered in Parliament, and it will be well if Members of Parliament can be induced to give their best efforts to the obtaining an effectual measure for the suppression of colliery

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if Members of Parliament can be induced to give their best efforts to the obtaining an effectual measure for the suppression of colliery accidents, more particularly explosions.

No enactment will be of any benefit, I submit, unless some direct remedial measures are provided by striking at the root of the evil, For instance, a discontinuance of the use of gunpowder in mines producing explosive gases would remove one of the chief sources of evil, and if prohibited by the Legislature no doubt some substitute would speedily be found amongst the many ingenious contrivances invented for the purpose. Again, on the occurrence of an accumulation of gas in the workings, or any part of a mine, the working of the mine should be suspended until the ventilation is restored to a healthy state. Safety-lamps should be solely used in fiery mines, In such mines also the furnaces should be abandoned and machine ventilators adopted as being both economically and in point of safety much superior to the former. The introduction of these sweeping reforms would soon produce most satisfactory results; they might be deemed at first harsh and unworkable, as the Army Bill, the Irish Church Bill, and other measures have been so considered, but the practical effect would be getting rid of the baneful causes of the evil, and the introduction of a system constituted on safe and sure principles, as far as this can be attained by human means, forethought, and more perfect appliances.

The remarks of the Coroner at the summing up of the enquiry into the late Hindley Green explosion are to the point. In the next session he trusted a good Bill would be introduced, the recent accidents would enable them to obtain a more perfect measure than any which had hitherto been offered; the delay in this case would not be an evil. He was not aware that the previous Bills contained anything which would have prevented the explosion they were investigating, or that at the Moss pits, but there would probably be got next year something that would do good.

C. V.

## COMPRESSED AIR AS A POWER FOR UNDERGROUND

COMPRESSED AIR AS A 1-2-1.

PURPOSES, &c.

SIB,—Your correspondeut, "J. M. R.," in the Supplement to last week's Journal, is quite right. Compressed air by our patent is now more economical than direct steam for mining and all other purposes, F. Hurp. Albion Foundry, Wakefield, Jan. 2.

#### DESTRUCTION OF FIRE-DAMP, AND EXTINGUISHING FIRES.

FIRES.

SIR,—In my letter, published in the Supplement to last week's Journal, I endeavoured to give an outline by which my invention, the "Hydro-Carbonic Nitreo Fire Engine," can be employed for extinguishing fire, depolarising hydrogen and other noxious vapours and gases. I may state that, to bring such invention into operation, I am working in conjunction with the London Volunteer Fire Brigade, by which I trust that the question of extinguishing fire will be placed on a more satisfactory footing. It has been known for more than 20 years by the London Fire Brigade that water alone is not the proper agent for extinguishing fire, and it has appeared to me something marvellous that the citizens of London should have to pay the London Fire Brigade, independent of the premiums paid the something marvellous that the citizens of London should have to pay the London Fire Brigade, independent of the premiums paid the insurance offices, nearly 65,000L per annum, and nearly 400 men are kept for the sole purpose of using ponderous engines, which generally arrive too late, and employ such floods of water that it needs the employment by the insurance companies of a salvage corps, at the cost of many thousands per annum, in endeavouring to prevent the disastrous results now produced by this course of procedure. I contend that this state of things is most unsatisfactory, and calls for a thorough practical remedy. We, therefore, propose to submit to

contend that this state of things is most unsatisfactory, and calls for a thorough practical remedy. We, therefore, propose to submit to the Volunteer Fire Brigade a definite plan by which fires may be scientifically dealt with, and by which means persons engaged in the Volunteer Brigade may employ their time advantageously to them selves and beneficially to the public.

This plan will consist in placing store chambers in different parts of London, or any other city or town, as mentioned in my last letter. A light apparatus, to travel on wheels, with or without pumping apparatus, will be constructed, and after the store vessels are charged from the engines the contents may be forced into any store vessel in any part of the city. This apparatus may be considered in the light of an auxiliary, and being of light and inexpensive construction a large number may be employed. The receivers may be placed on property from destruction by fire, and the business may be extended property from destruction by fire, and the business may be extended at a very small cost. The object of the company being to employ at a very small cost. The object of the company being to employ the most scientific apparatus, and supersede, as far as possible, the present expensive and cumbersome machinery. The same course will have to be adopted in the mining districts. A large receiver, with a pump and gas generating apparatus will be attached to the coul-winding or pumping engine. The receiver should hold from 500 to 1000 gallons, and should be always kept charged by the engineer at a pressure of 300 lbs. to the square inch. A pipe about 1 in. in diameter should be laid on from the receiver from the up and down cast shafts. A number of small receivers should be placed in the roadways of the pits, tunnels, or workings. These receivers should be furnished with pulse valves, to prevent back action in case of breakage. Small delivery bose should be attached to each receiver, and the receivers should be connected with each other. Jets may be fixed like gas-pipes, and a vapour of the fluid employed may be used instantly in any part of the mine. A man by this means might go through the workings, and instantly depolarise all the carburetted hydrogen and carbonic acid found in the pit. The mist may be distributed throughout any chamber, by which means a very small quantity of the fluid will render the pit, or mine, perfectly healthy. I may state that this fluid has no injurious effect on the health of the men. This, perhaps, is the strangest part of the discovery, that the fluid possesses a power of rendering caverns and tunnels salubrious and healthy, while it has no effect whatever on the respiratory organs of mankind. Again, there is no reason why this tery material may not be employed to work the coal-cutting manhines, and the escape may be distributed so as to render ventilation nunecessary, as the mixture is capable of restoring equilibrium in the properties of the atmosphere.

As a matter of course, it must be distinctly understood that the lacence of this fluid can do no harm at any time the properties of the atmosphere. er at a pressure of 300 lbs. to the square inch. A pipe about 1 in.

the properties of the atmosphere.

As a matter of course, it must be distinctly understood that the eccape of this fluid can do no harm at any time, therefore I contend that any objection raised to its employment can only arise from ignorance, indifference, or prejudice. The expense of employing this vapour in a coal district is simply nominal. A ton of this prepared teel would be sufficient for keeping a coal mine clear of vapour for everal months. It is not essential that the vessels in the bottom of the pit be charged at 3001bs, on the square inch is the proper pressure to work at; and I may state, for the information of those whom it may concern, that the same execution may be done by an apparatus working at 1501bs, on the quare inch as may be accomplished with 25 apparatuses working at 1001bs, on the square inch; and, further, that its power of deporising carburetted hydrogen diminishes in the general ratio. It ill require 100 times more fluid at 151bs, on the square inch than a required at 1501bs,; and, further, it will require 10,000 times the amount of fluid either to extinguish fire or neutralise hydrogen to the property of the property of the property of the property of the square inch than at 1501bs, on the square inch than at 1501bs. required at 150 lbs.; and, further, it will require 10,000 times amount of fluid either to extinguish fire or neutralise hydrogen t 1000 lbs. on the square inch than at 150. It must, therefore, be stinctly understood by all persons wishing to introduce this invenon into any factory, or working, that 150 lbs. on the square inch is estandard.

It appears to me, from long investigation of this subject, that the proper application of this fluid to produce the most useful effect may be considered analogous to the respiration or breathing apparatus the lungs of mankind—that is to say, 151bs, on the square inch our common atmosphere is the true standard, or requisite pressure for sustaining the conditions of life and motion; and it is just as essential, if fire is to be scientifically dealt with, and hydrogen and noxious vapours neutralised, that this standard law of 150 lbs. pressure should be distinctly understood, and scientifically dealt with accordingly. Any deviation from this general law can only incur waste of time and material.

I have endeavoured to be as explicit as possible in this matter.

because I am fully aware that many persons who may be anxious to introduce this invention into their districts may not possess time or inclination necessary for reducing elementary laws to their true ma inchination necessary for reducing elementary laws to their true mathematical proportions; and our friends may rest assured that whatever obstacles may present themselves in analysing the various laws of Nature, there are a few simple principles in full operation in regulating the various forces now in action, and that it is the duly and destiny of mankind to develope in every possible way the harmony by which those laws are regulated. Solving this is the true philosopher's stone. I trust, therefore, that this invention will be investigated, and put into operation first amongst the most fiery manes of this country, seeing that it is of the most simple observator. mines of this country, seeing that it is of the most simple character, and very inexpensive. I see no reason why the subject may not be taken up and immediately adopted by the various mine proprietors, at the invention is calculated in every way to protect their property from destruction, and at the same time to give the conditions of health to the working miners.

I may state, before closing this letter, that I shall be prepared to answer through the Journal any question that may arise respecting

swer, through the Journal, any question that may arise respecting s invention; and, further, I may say it has been a great consola-n to me to know that I have been instrumental in helping those

who could not help themselves.

THOMAS ATKINS.

26, Budge-row, Cannon-street, London.

P.S.—We have prepared apparatus for distributing the vapours at the pressure before mentioned, and, as many of the pits are already fitted up with pipes for conducting compressed air to the coal-cutting machines, there can be no objection to the pipes being employed and connected with the various receivers, as our pressure is distinct to that now used for the compressed air. This would considerably reduce the cost of applying this invention to the mines; and, further, as this invention requires 1-10th water to be used, this will be ample to lubricate all the plugs and valves for the keeping down the temperature to the most economical point of working.—T. A.

### THE POSITION AND PROSPECTS OF MINING.

-Taking a retrospective glance over the year just closing BIR.—Taking a retrospective glance over the year just closing, mine adventurers may well congratulate themselves upon the vast improvement which has within that time taken place in the price of metals, and upon the excellent prospect which exists of a long continuance of the present prosperity. Mines which at previous prices for copper and tin would scarcely return the outlay made upon them have been enabled to give dividends to the adventurers, in many cases sufficient to compensate for heavy and annoying disappointments elsewhere; and mines which had long been struggling on at much disadvantage in consequence of insufficiency of plant and machinery have been enabled to place themselves in the best possible position for future profitable working without calling for further position for future profitable working without calling for furthe contributions from the shareholders. All this, moreover, notwith standing the constantly increasing value of labour and a consider planding the constantly increasing value of labour and a considerable increase in the no less indispensable requisite for all industrial operations—fuel. Coal is at present from 3s. to 4s, per ton higher than at the close of last year, chiefly owing to the higher wages paid to colliers; yet, whilst the improvement has been productive of material benefit in the colliery districts, the metalliferous miners have so largely participated in the general prosperity that the increased price of coal has caused no serious inconvenience even at mines where the quantity of stammonwar amployed, and consequently the conquantity of steam-power employed, and consequently the conption of fuel, is the largest,

the quantity of steam-power employed, and consequently the consumption of fuel, is the largest.

The mines which have derived the greatest advantage are doubtless those producing tin; but copper mines have likewise obtained considerably higher prices for their produce; and although the price of lead has not advanced to the same extent, the improved commercial position has permitted an advance of 1L per ton possible, not withstanding the largely increased supply. The consumer has recently been paying 20L per ton more for tin than at the commencement of the year, and such is the confidence of the smelters in the atability of the market, though all were aware that the excessive prices which ruled for a few days could only be temporary, that they have made an almost corresponding advance in the standard upon which they purchase their ores. Although a very small proportion at tin enters into the composition of tin-plates, a rise of from 4s. to 1s. per box in the latter has been established; and as previously to the late improvement in the metal markets the tin-plate makers have had a very small margin for profit, and as iron is also dearer, it is probable that at least present prices will be maintained, even should tin be quoted somewhat lower. The prospects of the market with regard to other metals are equally favourable, as stocks are generally low, and the demand is excellent.

In this position of affairs it is not surprising that the disposition to invest in Cornish and Devon mines should be much greater than it has been for some time, and since, judging from the large amount.

for the benefit of the owners of mines in the western states of America; and I am convinced that while metals remain at an their present price they will obtain a far larger intere CORNUBIENSIS,

#### THE NEW YEAR-1872.

THE NEW YEAR—1872.

SIR,—The New Year opens to the Queen's subjects with many reasons for thankful reflections, yet associated with pertinent warnings; the year just passed is allied with grave and serious retrospects, and the future is fraught with the liveliest hopes and forecasts of domestic and foreign peace, commercial prosperity, active and prosperous trade and manufacture, added to ample and remunerative labour. What would our national holiday—Christmas—have been but for the favourable course vouchasfed to our noble Duke of Cornwall? His illness conspicuously developes the combined intensity and individuality with which the Prince of Wales's danger was felt in every home, not only of the United Kingdom but throughout the whole empire. The Queen throws open the halls of Windsor, and the family banquet displays a warmth of domestic hope and happiness that augurs well for the future, and sets an example of royal affection that should extend its power throughout the families of the nobles and wealthy who circle around their hearths at this hospitable season of the year. We would, if we dare, say that the continental storm is finally allayed, but the words of bitter recrimination between German and French statesmen are jarring against messages of peace, whilst the latter has unquestionably to pass through a constitutional convulsion. It is monstrous to contemplate an additional charge of 20,000,000?. annually, consequent on the war. It is true that 213,649,000?. the been paid or provided for, with 126,351,000?. still owing, to liquidate the indemnity to Germany. The estimated revenue for 1872 is put down at 97,174,500?; the expenditure will be increased 6,000,000? annually, accumulative debt for interest on the sum still due to Germany: whilst M. Ponyer-Quertier's statements conclusively show that the taxation of France will become 110,000,000?, permanently annually. From whence will this sum spring, and permit trade and commerce to maintain their "standards" in the marts of the world? far less to speak of pr

dom is the richest community in the known world. The average income of every soul, man, woman, and child, is above 25*l.* annually whilst free trade places the consumption of sugar, rice, tea, coffee, salt, and many of the luxuries of life within the reach of every industrious and prudent man and family. Again the scale dustrious and prudent man and family. Again, the social progress of the United Kingdom has made wonderful strides in favour of the or the United Aingdom has made wonderful strides in favour of the masses. Education, cheap postage, and telegraphy expand the mind, give freedom of thought and interchange of sentiments, whilst the latter open out rapid communications between nations, peoples, and kin, and foster competitive trade and commerce through the suppression of managed in the suppression suppression of monopolies.

The crisis of 1866 has resulted in great benefits to the home in railway

The crisis of 1866 has resulted in great benefits to the home industries of the country, and in no respect more so than in railway reforms, and consequent prospective progress and prosperity. Railway finance is far better than formerly—permanent debenture stock, instead of short and periodical renewals, has effected great economy, whilst retrenched expenditure, enhanced practical management, and more efficient executives, all tend to give this class of property a status and value which it never at any former epoch possessed. The revenues of our railways have made swift advances during the past half-year, as compared with the corresponding half of 1870:—Great Eastern, 52,896£; Lancashire and Yorkshire, 126,040£; London and North-Western. 220,422£. London. Brighton. and South Coast. hair-year, as compared with the corresponding season, 52,8961; Lancashire and Yorkshire, 126,0451; London and North-Western, 220,4221; London, Brighton, and South Coast, 50,0571; Midland, 181,9611.; North-Eastern, 205,0611; South-Eastern, 66,8821; Caledonian, 61,6481; Great Western, 100,8291.; and North British, 54,1271. Joint-stock banks, otherwise than those of a "limited" character, it must be remembered, are exposed to unknown casualties to shareholders, not only so long as their names remain upon the "register," but also, in case of their assigns not proving responsible. For even three years after transfer of their remain upon the "register," but also, in case of their assigns not proving responsible, for even three years after transfer of their shares creditors are wholly protected from loss in such wide-spread "constituencies" as the London and Westminster, London and County, National Provincial of England, and many others of our metropolitan and provincial joint-stock banks, yet liabilities to the proprietaries are "unlimited" to the full extent of the convertments of the banks. This unlimited responsibility is severely felt by the trustees under the will of a Mr. Palmer, who held 37 shares in the Birmingham Banking Company, which stopped payment in June, 1866. Vice-Chancellor Malins has decreed the trustees to pay 1900'. calls on these shares, simply because they delayed realising them calls on these shares, simply because they delayed realising them within 12 months after the demise of Palmer, whilst they held them on from April, 1864, to June, 1866, when the bank stopped payment. There can be little doubt entertained in respect to the coming half. year dividends on joint-stock banks. The commercial dealings of the country have for months past been in an extremely healthy and satisfactory condition; the hemisphere has been cleared of a host of ephemeral concoctions and speculative firms, which formerly dealt almost exclusively upon credit; hence at moments of pressure they had to succumb to force of natural laws and circumstances. The business of banking is perfectly legitimate and profitable, and it is only when such institutions become allied with adventurers instead of bona fide finance that risks are incurred. It is to be deprecated if joint-stock banks, through competitive cravings after gains, infringe upon the business of bill-discounters and money-leaders, and thus subject themselves again to the culmniated catastrophe of May, 1866.

The coal and iron products of the United Kingdom are worth to the miner about 20,000,000l. annually, yet the consumers have to pay at least 100,000,000l. for the mineral and metal. The costs of carriage per rail and ships, comparing agins and expenses of depois

at least 100,000,000? for the mineral and metal. The costs of carriage per rail and ships, commercial gains and expenses of depots, carting, delivery, commissions, &c., absorb the difference betwixt the two sums, so that it will be seen at a glance that merchants and carriers secure far greater gains than the miners, yet many of the most opulent and wealthy families in the land owe their position and influence to the start which coal and iron mining gave them. At Barnsley, Barrow-in-Furness, Middlesborough, Stoke-upon-Trent, and Wolverhampton the iron trade is good, and great expectations of increased business and advancing prices are looked forward to for the coming year. The reports from the coal districts are highly satisfactory, and the future is allied with cheering prospects. In Wales, both north and south, lead mining has greatly increased, and a great number of new undertakings command attention upon the London and other share marts of the kingdom. There has not, however, during the past year been any very important discovery of ever, during the past year been any very important discovery of mineral wealth made, although in several instances the market value of shares rules high. Rampant markets are not generally desirable arenas for the uninitiated to visit—the time to buy, or rather to invest money, is when demand for shares is slack, and intrinsically valuable properties all but neglected. There are many'of this class that can now be selected with judicious discrimination, and from which large gains must accrue during the coming year as pioneer point after point become developed, and which must, as yield increases, attract public attention, and thence become market favourites. It is to Cornwall that we must look for our best and most profitable mines, and those yielding tin stand at the head. It is true ever, during

Consols, New Hingston, New Hendra, Buller, Grenville, Lucy, Mary Ann, North Buller, Penhalls, St. Just United, and Tranuack.

The price of tin is good, and likely for a time to advance, yet in two or three years the increased yield of tin ores must necessarily exercise an adverse influence on the markets. Copper is at a fair price, and many mines ought to pay good dividends. The present is the most charming epoch in Cornish mining that I have known during 40 years of practical experience, and for the ensuing year all associated with such pursuits should reap a golden harvest; then let us hope that the Cornish motto—One and All, fair play, fifteen balls—prove in practice what it is in spirit—viz., fair play for "one and all," and not as some represent, fourteen to one against the outsider.

A happy and prosperous New Year to all. R. TREDINNICK,

Consulting Mining Engineer.

3, Crown-court, Threadneedle-street, City, Jan. 1, 1872.

3, Crown-court, Threadneedle-street, City, Jan. 1, 1872.

#### "WHAT TO SELECT-WHAT TO AVOID"-No. VI.

SIR,—I ventured last week to observe that in the face of "national calamities and continental disruptions adversely affecting every description of monetary security, mining had steadfastly held its own, not only having maintained its negociable value, but also realised an enhanced value for its produce." While mining invariably manifests this desirable freedom from any undue depression, it largely participates in the inevitable reaction which follows. The state of the revenue the hankers' clearing house figures, the returns of exports. participates in the inevitable reaction which follows. The state of the revenue, the bankers' clearing-house figures, the returns of exports and imports, are the tests indicating the active and prosperous condition of the trade of the country; and, as is evidenced from day to day, no produce or commodity so materially benefits from such a condition of things as the value of metals. The high prices ruling in other securities arise, we are told, from three causes—cheap money, cheap Consols, and improved credit. "But," asks the same authority, "will this rise be permanent, cleap money being obviously extremely temporary." Dearry money will, perforce, cause a sharp reaction temporary?" Dearer money will, perforce, cause a sharp reaction in the marketable value of securities generally, and when this shall take place—as it most assuredly will—for "the tide which came in will some time go out, when there will be low water as there is now high water"—mining values will remain unaltered, depending almost entirely upon the value of metals, which enhances proportionately with the expansion of trade expansion of trade.

Every feature unmistakeably indicates the force of your remarks, that "the measure of improvement in the metal market is assuming such strength and dimensions that nothing but vast speculation or ome untoward complication of events which have not as yet given

some untoward complication of events which have not as yet given any sign of their approach can stay its onward course." It is not too much to say that mining (as an investment) is just entering upon a new career of unprecedented success, and that its results will establish it more firmly than heretofore as the most remunerative security in which capital can be employed.

For years past mining—I mean sound, legitimate mining—has been gaining favour among the investing public; and, now that it has been, so to speak, born anew it is to be slucerely hoped that its career will not be marred by unwholesome accretions stultifying its otherwise satisfactory development, but that it will gain honest and healthful strength, yielding increasing results with advancing years, until it shall occupy that exalted position which it deservedly merits as the most important branch of our national enterprise. Let years, until it shall occupy that exalted position which it deservedly merits as the most important branch of our national enterprise. Let each one whose business and interest it is to encourage the extension of this profitable channel for the employment of capital fell with a relentless hand every upas tree that insidiously sheds an atmosphere that arrests legitimate progress.

CREEGBRAWSE.—This mine is situated immediately to the east of Wheal Garland and Wheal Units, both of which have been exceedible which are half by a process of the property of the east of the control of the process of the control of the con

few local gentlemen, and until very recently they have seldom been obtainable; and but for the fact of the late Mr. F. Pryor's interest obtainable; and but for the fact of the late Mr. F. Pryor's interest having been sold by his executors, in all probability this mine would have been little heard of. A considerable amount of money has been divided amongst the shareholders at different times; and the present profits are estimated as equal to 1t. per share per quarter. This is principally owing to the more vigorous working adopted by the recently appointed manager, and the abolition of various superfluous expenses. One noticiable fact is that for years past no samples of the tinstuff had been taken by the agents, and whatever was raised from the mine was stamped totally regardless of its quality, or without knowing even whether it would pay the cost of returning. The stopes are now set on tribute, and everything is sampled as soon as stopes are now set on tribute, and everything is sampled as soon as raised. It is expected that fully 100t, per month will be saved by this arrangement, permanent profits will be realised, and satisfactory dividends will be declared.

WEST TANKERVILLE,—This mine adjoins the Roman Gravels, and when the most productive lodes of that mina. Mining in this district dates back to the Roman period; but in later times the Snailbeach, Oven Pipe (now called Tankerville), Roman Gravels, Bog, and Pennerley were worked conjointly by a local company, known as the "Laurences." This company expended nearly 500,0001, in mining operations throughout the district, the principle part of which was supplied from returns of lead realized from the West Tanwhich was supplied from returns of lead realised from the West Tan-kerville, in those days known as Old Batholes. The Wood vein, the chief lode worked upon, yielded 300,000%, worth of ore (pig-lead at the time selling at 8l. per ton) from surface to the 18 fm. level.

It may not be generally known that, through mismanagement and misrule generally, the Laurences came to grief, and abandoned all their mines in succession. Since then Snailbeach has yielded enortheir mines in succession. Since then Snailbeach has yielded enormous fortunes, the present returns of lead being 250 tons per month. Roman Gravels and Tankerville have proved themselves no mean neighbours of Snailbeach. Capt. Arthur Waters, the manager, states that the Roman vein, so productive in Roman Gravels, runs parallel to the West Tankerville boundary, and will be altogether into the set at 200 fms. below adit, when the mine will contain all the lead-producing lodes of both mines. Besides the 13 lodes known to be within the property, the Snailbeach great lode comes into and traverses the sett for about \(\frac{1}{4}\) mile.

These and other facts justify Capt. Waters in expressing the greatest confidence that this mine contains all the elements necessary to great

confidence that this mine contains all the elements necessary to great connected that this influe contains all the elements necessary to great success, and that its future history will record large returns of lead from the various lodes. Some short time since the shareholders decided to sell to another company that portion of the mine which they were never likely to require. By this means West Tankerville has been placed in a sound financial position, and within the next month or two (the machinery being completed) large and increasing monthly returns of lead will be made.

There is no geological or mineralogical reason why more adequate.

returns of lead will be made.

There is no geological or mineralogical reason why upon adequate development this mine should not be in every essential equal with Tankerville or Roman Gravels; indeed this is, I think, plainly indicated by the fact so strongly dwelt upon by Capt. Waters at one of the recent meetings of the company—that all the great deposits of lead in this locality are found where the rocks are m by the apparent influence of the greenstone, and nowhere in Shropshire does this rock come up in greater force than in West Tankerville. There are 12,000 shares of 3l. fully paid, and the price is about 3\(\frac{1}{4}\).—1, Pinner's-court Old Broad-street. F. WM. MANSELL. -1, Pinner's-court Old Broad-street.

### THE MINERAL RESOURCES OF IRELAND.

SIR.—I am not surprised that Mr. McCormick, the owner of the Currauncestate, in the county Mayo, is so indefatigable in endeavouring to have the property taken up by a public company, believing, as he does, that it contains valuable mineral deposits, though not yet proved. I can fancy the writer of the letter in the Journal of Dec. 30, signed "E.," sitting at Mr. McCormick's elbow when he wrote it; all through it conveys the same expressions Mr. McCormick has for years used when pourtraying the great value of the estate, and the prospective working of the minerals. How was it that, when many years ago Mr. Henwood and a Mr. Molyneux, a gentleman then well known in the mining world, resided for months upon the estate, and called in the aid of Mr. Spargo to map the estate and lay down the lodes, those three mining celebrities failed to get up a then intended company, the three being promised to largely participate in the sale of the estate to the company? There are many mining men who will remember their activity upon that occasion, and since that period the estate has been hawked about and submitted to many enterprising mining capitalists to my knowledge, The 3000 acres of good SIR,-I am not surprised that Mr. McCormick, the owner of the in enters into the composition of tin-plates, a rise of from 4s. to fis. per box in the latter has been established; and as previously to the late improvement in the metal markets the tin-plate makers have had a very small margin for profit, and as iron is also dearer, it is probable that at least present prices will be maintained, even inhould tin be quoted somewhat lower. The prospects of the market is in plate market in the metals are equally favourable, as stocks are generally low, and the demand is excellent. In this position of affairs it is not surprising that the disposition to invest in Cornish and Devon mines should be much greater than it has been for some time, and since, judging from the large amount of capital supplied by British capitalists for the development of all who have money to spare to ascertain more about the tin and all who have money to spare to ascertain more about the tin and corning the provided for more about the tin and corning the provided for more applied to the proposes, I would earnestly recommend all who have money to spare to ascertain more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided for more about the tin and corning the provided f

land ready to be taken up by a respectable class of farmers has been a standing dish for years, and no doubt when the 3000 acres of bog lands in the valleys are well drained and suitably manured they will be good arable lands, suitable for farmers. "E." writes as though the 3000 acres were now available for letting to tenants. If such is the fact, how is it the respectable gottleman who has for years been the receiver of the rents for the mortgagees does not avail himself of realising such a large additional income, considering there are upwards of 30001. of arrears of interest on the mortgage debt? Nor does "E." allude to the fact of there being a ground rent of 1931. 3s. chargable on the estate, nor that it would require an outlay of at least 50,0001, to put the estate and premises into tenantable condition, and to lay open the mineral lodes to bring them into a good prospective mining condition. It is well that the mining public should know the true state of a case, when so strongly advised to embark in it. It is to be observed that your correspondent, "E.," does not contradict any one fact or statement put forth by "Verax" in the columns of the Mining Journal.

MINER.

#### MINERAL RESOURCES OF IRELAND.

SIR,—If your correspondent "Verax" would only have the goodness to give his name and address it might have saved you the trouble I am now giving of asking you to insert this letter in reply to his, which appeared in the Supplement to the Journal of Dec. So. The iron ore in the Curraune estate is admitted by ironmasters to be of very superior quality; the only question is as to quantity. This is easily proved; and I say, as a practical miner, the quantity is so large that it cannot be worked out in 100 years. As regards the Knockmahon mines, I have only to state that I worked for eight years in those mines under Mr. John Petherick. GEO, DAVEY.

Supergroup Talbut street Dublin Jan 2. Spencer-row, Talbot-street, Dublin, Jan. 2.

#### LEAD MINING IN THE MINERA DISTRICT, NEAR WREXHAM.

SIR,—The great Minera Mine is producing from 400 to 500 tons of lead ore and 250 to 350 tons of blende per month, and will probably continue to do to for many years to come, even if no new discovery be made. The advance in the price of blende will considerably increase the profits of this mine, as there are unlimited quantities of best quality blende known to exist, and in working which a good deal lead ore will be found.

The Minera Union Mine is returning ore in small quantities, and

the prospects of greatly increased returns during the present year are very encouraging.

There is but little or nothing doing in any of the other mines on the Eisteddfod estate, and the North Minera Mineis also at a standstill.

The Eastedfod estate, and the North Minera Mine is also at a standstill.

The Park Mine Company are continuing the Minera day level with all possible speed; it is expected that this level will be under the old Park Mine workings in about six months, when permanent returns will be made. This mine will also be much benefited by the advance in the price of tin ores, as there are very large deposits of calamine and blende in this mine.

The South Minera Mine which her bear at a standstill for some

The South Minera Mine, which has been at a standstill for some time, is likely to pass into the hands of an influential new local com-pany, who are mostly composed of the former shareholders, and there

pany, who are mostly composed of the former shareholders, and there are good reasons to expect a successful result. Two other companies, adjoining this latter, are also preparing to go to work early in the spring. It is to be hoped that this district will again be at the head of the list of lead-producing localities before long. It has already proved the richest lead-producing district in Wales during the present century, having returned between 2,000,000L, and 3,000,000L worth of lead and zinc ores from a comparatively small amount of ground.

MINER.

#### THE MINERS' WAGES MOVEMENT.

THE MINERS' WAGES MOVEMENT.

SIR,—I have of late had opportunities of consulting some of the most experienced, influential, and able men connected with mining, and they all, without a dissentient voice, designate the proposed transformation of the year from 12 into 13 months as altogether unnecessary and absurd. It crosses the mind of every practical man as being something akin to taking a steam-engine to pieces and disarranging the whole of the workings merely to rectify a trifling irregularity in the parallel motion. In order that the question of wages may be fairly considered by those really concerned in the matter, I would urge upon mining adventurers generally the desirability—nay, the necessity—of attending the meeting about to be called, probably at Truro, and that a deputation of one or more be specially sent from all boards of directors and committees of management in London and elsewhere, representing mines in Cornwall and Devon. Some very crude ideas are being enunciated in the West with regard to wages by a number of local orators, of various creeds and occupations, not particularly remarkable for any very extensive embarkation of capital of their own, or for any actual seal for the welfare of mining industry; one clergyman, for instance, observing at a recent public meeting that mining in Cornwall might as well die out if the minimum of wages could not be kept up to 4l, per four-week month for every mnn. This naturally tempts one to enquire if it would be attrictly correct to recommend that all the choice glebe lands throughout the kingdem should go out of cultivation simply because it so happens that clergymen's labourers, and others that might be mentioned, are in the habit of earning only about 12s. per week all the year round?—Jan. 4.

An Adventurer.

## THE MINERS' WAGES MOVEMENT.

SIR,-At a meeting which it appears by advertisement is shortly to be convened of mine proprietors and others this question doubtless will be fully entered into, and such information obtained as may form a sound and solid basis of settlement. I would, with your permission, however, venture to observe that in a matter of this importmission, however, venture to observe that in a matter of this importance, involving a general disruption of the whole system of mining management and accounts, it would scarcely be politic to decide the question off-hand at any single meeting, however influential that meeting may happen to be, as in the heat of discussion a calm and temperate ultimatum can hardly be expected. I would, therefore, suggest that this important question be ultimately submitted to a court of conciliation, presided over by (say) the Vice-Warden, Mr. Robert Childa, and Mr. Stokes, with any other gentlemen of talent, integrity, and experience, who should be invested with power to examine witnesses, and to take any other means in order to arrive at a just conclusion, and the decision of this Court should be deemed flual and conclusive between all parties concerned. IMPARTIAL.

### SILVER MINING IN COLORADO.

rtant discovery of silver ore yet made in this territory is without a doubt in the counties of Summit and Park, on the mountain range known as Mount Lincoln and Mount Bross, which are the highest mountains in Colorado, Mount Lincoln, according to the last aurvey by the Vice-President of the United States, standing are the highest mountains in Colorado, Mount Lincoln, according to the last survey by the Vice-President of the United States, standing 17,600 ft. above the level of the sea, and are the division of the two counties, and also of the two rivers, the Blue and the Platte, the Blue, running on the west side, emptying itself into the Colorado and into the Pacific, and the Platte on the east side, emptying itself into the Gulf of Mexico. On each side of this meuntain range the late discovery of silver has been made, and from the richness of the ore open at the surface, the size and masterly appearance of the lodes, and their continuation through this range in both counties, and the speediness of working them, it may be correctly said that this is the most important discovery of silver ore ever made in all the Rocky Mountains, from California to the Gulf of Mexico. The first discovery of this silver deposit was made in the fall of 1869 by four Cornishmen, who had no means of prosecuting their property beyond the requirements of the country to have a clear title to its holding—to sink 10 ft. on each lode, and show its size, &c. This was done on seven lodes, in close proximity to each other, the ore assaying at that depth on all the lodes over \$300 per ton, and at the bottom of a shaft sunk the last summer to the depth of 60 ft. on one of the lodes the assay is over \$600 per ton, or over \$1200 per fathom, and continually improving in depth. This property is still owned by the four Cornishmen, and called the Hecla mining property, and I think can be bought on reasonable terms from them. The other discovery, to the east of Mount Lincoln, is the Dwight, the Moose, and various others that are not yet named, all of which are very rich for silver, some of them assaying over \$3000 per ton for silver and gold, and others from \$600 to \$700 that has been taken away from the surface: 40 tons taken from the Moose lode has been sent to the works of the Boston and Colorado Company in this place, which realised over \$600 per ton, besides the cost of the sinking, as broken from the back of the lode at surface. This property has been sold to a party here for the sum of \$60,000, and is considered to be very cheap at that price by all practical men. Another lode has been sold to the Boston and Colorado Smelting Company for \$26,000 in the last few weeks, and no doubt many others will be sold in the spring of next year which I think are worthy of the attention of the English capitalist, both for mining and smelting purposes, as there is no smelting-works within 100 miles of this important mining district; and I hope to see some of our mining men here in the spring to invest their money in this place, as it will be a safe and sure investment for them.

H. B. GROSE,

Central City, Dec. 7. Central City, Dec. 7.

#### WHO ARE THE MANAGERS!

SIR,—Being a constant and interested reader of your valuable Journal, I have particularly noticed in the columns under the heading "Foreign Mines," that the managers' names of the Brazilian mines—Don Pedro, Anglo-Brazilian, Sao Vicente, Taquaril, Rossa Grande, and General Brazilian—are since June withheld. Previous to July the managers' names always appeared at the head of the report, followed with extracts from the different managers' reports, and this omission still continues.

port, followed with extracts from the different managers' reports, and this omission still continues.

By reading a well-written letter in the Supplement to the Mining Journal of Dec. 23, signed "A Subscriber," I learn that the London gentlemen are remedying the sad state of affairs by the appointment of new blood in the management in Brazil. If, Sir, any of your readers could through the Journal furnish us with the names of those gentlemen and managers the writer would be thankful. If any change takes place it most certainly would be for the better.

It may not be known that the above-named companies' properties are divided into 626,162 shares. Although nearly half a million sterling has already been expended with bad results, there yet remains nearly 200,000l, to be employed in case the right men get in the right places. This would, no doubt, soon be followed by many good results from those long mismanaged mines.

good results from those long mismanaged mines. St. Day, Jan. 2. A SUBSCRIBER.

#### THE UTAH MINING COMPANY.

The remarkable position occupied by this company is worthy of consideration. Whilst the shares have been steadily going SIR,—The remarkable position occupied by this company is worthy of a brief consideration. Whilst the shares have been steadily going down in market value the reports from the mines have uniformly testified to the increasing value in the ores, as shown by developments subsequent to the purchase of the property by this company. If this undertaking was began, and has been continued, in falsehood and fraud it would be wasting time to consider the reports from the mines; but if Capt. Nancarrow, Mr. Sewell, Mr. Murphy, and others are to be believed, it would be an equal waste of time to listen to any disparagement of the mines as an explanation of the company's present position. We must, therefore, look elsewhere for the cause. The richest mine ever discovered would be valueless to the possessor if he had no adequate means of working it, and want of working capital is the sole cause of this company's present position.

Capt. Nancarrow, in his last published report, dated Nov. 16, says:

—"The mines never looked better, nor even so well, as to-day, and it only requires time and money to make them a most splendid property." Mr. Sewell, in his original report, stated that "each 20-ton furnace would give a net profit of 15,000%, per annum;" and on Nov. 21 last he telegraphed to a shareholder in London as follows:—"Not changed one iots. My opinion of the Utah Company raised considerably;" and Mr. Murphy says that the property is "invaluable." It is impossible to believe that all these statements are false, or that they are made in ignorance, for the writers are all men of good repute; they are skilful and experienced, and have examined the mines over and over again.

The operations of the company were commenced with a working of a brief consideration.

pute; they are skilful and experienced, and have examined the mines over and over again.

The operations of the company were commenced with a working capital quite inadequate to develope this fine property, and the error is less pardonable because it was committed in spite of professional advice to the contrary. From this error has sprung all the others. Mr. Murphy, who under the old management produced from 5 to 6½ tons of bullion daily from the old furnace, was obliged, "reluctantly," to retire from the management of this department, contrary to Capt. Nancarrow's wishes. Since that time the smelting operations have been conducted in the most inefficient manner, the highest average rate of production, from the same furnace, not exceeding 3 tons of bullion daily. And during the three months from September the furnace was at work only six weeks, the whole time being marked by blundering and incompetence, which involved the company in a loss of profit of at least 3500£, sufficient to pay a dividend at the rate of 15 per cent, per annum on the entire capital of the company.

Another error, emanating probably from the primary one, was to allow 2000L worth of coke to lie at Sandy Station until a heavy snowstorm rendered the roads impassable, and thus for a time suspending the company's smelting operations.

On the information that has been published from time to time, I

will now endeavour to show the necessary amount of silver in the ore to yield the estimated net profit of 101. or 121. on each ton of bullion produced. Three tons of ore will produce 1 ton of bullion. ore to yield the estimated net profit of 10% or 12% on each ton of bullion produced. Three tons of ore will produce 1 ton of bullion. The highest estimate of the total cost of producing the bullion (including mining, smelting, and freight to Omaha), is that given by Mr. Janim—370 per ton. The last sale of bullion realised \$132 per ton. The value of the gold in each ton was \$9, and the amount of silver 50 czs. Allowing for a loss of 14 per cent. in smelting, each ton of ore would contain about 19 czs. of silver. We thus see that ore containing the average amount of lead, and 19 cz. of silver to the ton—without gold—will produce bullion of the value of \$123 per ton. An important element, therefore, in the success of this undertaking is that the ore should contain about 18 or 19 cz. to the ton. This from each 20-ton furance would yield a net profit of 15,000%, per annum, and the promised reduction of freight to Omaha and the gold found in the ore will add so much more to this net profit.

The vendor, I understand, is willing to give up a certain number of his shares for the purpose of raising more working capital. This is a wise course, and will considerably enhance the value of his interest in the undertaking. Supposing he gave 1000 shares for this purpose, to be offered to the shareholders, and the directors advanced 5000% amongst them on debeutures, to be paid off by the issue of 500 shares at a time when the price is more in accordance with the real value of the property, a sum of 10,000% or 11,000% would be provided, which I think would be ample for the purpose of thoroughly developing the property and let the directors advance and the property and let the directors advance of the prope

which I think would be ample for the purpose of thoroughly devewhich I think would be ample for the purpose of thoroughly developing the property, and let the directors engage the services of competent men to conduct the company's operations, and we shall hear no more of a change in the nature of the ores. I never knew a man who undertook to do work he did not understand that was not always ready with an untenable excuse. If there is the requisite amount of silver in the ore a competent metallurgist will know how to extract the profit by the office are of an impense size, and show an init profitably. The lodes are of an immense size, and show an increasing richness in silver; and the geological formation being quartaite is highly favourable to permanence in depth. The claim is an unusually large one (upwards of 8000 ft.), and with an adequate working capital—say, 10,000%, more—the result in the shape of dividends will be such as to satisfy the most exacting shareholder, unless, as I have said before, the undertaking was begun and has been centinued in falsehood and fraud. been continued in falsehood and fraud,

SIR,—Our directors, having expended the whole of our capital, have now appealed to us for advice and assistance. This unfortunate company, which was so much trumpeted forth on the Stock Exchange as being the most valuable of the Utah mines, and in which our directors, to secure shareholders, promised 100 per cent, dividends, has, unfortunately, proved a lamentable failure.

The property, which has been dealt with in a very unusual and ex-ptional manner, was purchased in direct opposition to the report of one of our osteminent mining engineers, Mr. Janin, whom the directors specially engaged

to inspect and report upon it. This gentleman furnished us with a very elaborate report, giving a variety of reasons why the property should not be pechased, and strongly recommended us not to accept it, as not being in any wy capable of realising the expectations held out by the vendor's statement. It will be remembered that at the date of this unfavourable report it was stated that the directors had soid at an immense premium all the shares they originally passessed, saving such as they were bound to hold to qualify them for office. It was stated that then determined to hold the proposed meeting, to take the general opinion of the shareholders as to the purchase of the property; but as the original allotus were the only parties then registered, it was not deemed necessary to summe the new shareholders, and the former seeing how large a sum each of the would have to refund should the purchase not be completed, the directors would have to refund should the purchase not be completed, the directors trievy ignored the interest of such new shareholders, and it was by the volcast recommendation of the few and deeply interested parties who floated the one pany that the purchase of the property was completed.

The directors, notwithstanding their great gains, have treated us in a vy uncourteous manner. In the first place, the capital was suddenly called up with the shares would become forfeited. Again, the first general meeting was on month beyond the time prescribed by the Act of Parliament, and at that meeting the shares would become forfeited. Again, the first general meeting was given was that the new furnace was then completed, which Mr. Batters standgiven was that the new furnace was then completed, which Mr. Batters standgiven was that the new furnace was then completed, which Mr. Batters standgiven was that the new furnace was then completed, which Mr. Batters standgiven was that the new furnace was the commencement of erecting them furnaces. As we are entirely dependent upon the directors for the little infou

THE UTAH MINING COMPANY.

SIR,—Will the directors of this company give the shareholders informating as to the condition of their property? The stock has no friends; I see it good day after day at 6 to 6½, I try to sell, and can get no better offer than 8, he the directors admit that the ore is so poor that it costs more to mine and reducit than the product will sell for. It is no use for us to disguise the fact that set it for many the first subscribers to the slet why should be, when he plainly set it forth to its purchasers? I remember what the property was first offered here last April the first subscribers to the slet were gentlemen of large means, and who would scorn the idea of "rigging unarket;" the stock advanced from par to at least 12 prem. Soon after one of the best muling experts of California reported decidedly against it; then the best muling experts of California reported decidedly against it; then the best muling experts of California reported decidedly against it; then the best muling experts of California reported decidedly against it; then the best muling experts of California reported decidedly against it; then the best muling experts of California reported decidedly against it; then the best muling experts of California reported decidedly against it; then the best muling experts of California reported decidedly against it; then the best muling experts of California reported decidedly against it; then the best muling experts of California reported decidedly against it; then the best muling experts of California reported decided in a subscription of the ported decided in a subscription of the property of the control of the province of the property of the control of the province THE UTAH MINING COMPANY.

THE CUIABA GOLD MINING COMPANY.

THE CUIABA GOLD MINING COMPANY.

Sira,—In reply to a letter which appeared in the Journal on Nov. 4, from "I Shareholder" in the above company, the secretary, in your publication of the following week, informed your correspondent that the "annual general meets will shortly take place." Ten days since I received notice that the annual general meeting would be held on Thursday, Dec. 28. With the notice I received a declar from the secretary, stating that the meeting would be held pro forma, and an adjournment proposed to a later date, to conclude some arrangements where being made.

As a shareholder resident a considerable distance out of town, and not having time to attend meetings of this description, I am entirely dependent upon we

As a shareholder resident a considerable distance out of town, and not having time to attend meetings of this description. I am entirely dependent upon you valuable Journal for reports of meetings such as the above, but on turning your paper of Saturday last I find no account whatever of the meeting. May ask, Sir, whether you had notice of the meeting? For, if so, I believe you well have sent one of your staff, so that a report of the proceedings might have peared in your columns.

This company was formed in March, 1870, and on the faith of the prospect, coupled with a respectable board of directors, I became a shareholder. In usual meeting, to comply with the Act of Parliament, was held on May 18, 182, 182 alound the saince been held until last week. I believe the Companies A, 1822, large down—

1.—That a general meeting of every company under the Act shall be heldes at the least in every year.

2.—Once at the least in every year the directors shall lay before the companies and the least in every as attement of the income and expenditure for the past year made up to a date not more than three months before such meeting.

3.—A balance-sheet shall be made out each year, and laid before the gezmi meeting.

3.—A balance-sheet shall be made out each year, and laid before the gram meeting.
4.—A printed copy of such balance-sheet shall seven days previously to at meeting be served on every member.
5.—Once at the least in every year the accounts of the company shall be amined, and the correctness of the balance-sheet ascertained, by one or me auditors.

The above clauses have not been complied with, and I wish to ask the freetors, through your columns, why they have not? I am airaid too manyes panles pursue the same course. I would also ask the directors why they doe publish each month the advices received from the mine, so that the sharehold may know how the promises held out in the prospectus are being fulfilled? It last two months 'advices have not been published. I hope to see them in yapper of Saturday next.

I am afraid this is another company started short of capital, but without accounts before me I cannot say. Still if the directors will come before a shareholders in a straightforward manner, laying the whole case fully a truthfully before them, they will do credit to themselves as well as the company Jan. 1.

IA representative from our office attended, for the purpose of reporting a

[A representative from our office attended, for the purpose of reporting in proceedings, but he was informed that the meeting was adjourned.,

### TIN MINING IN CORNWALL.

TIN MINING IN CORNWALL.

SIR,—Perhaps there never was a time when the shares were sought aftermed than at the present, and the public should act with great caution before innering into some of the old mines, that have been worked two or three time exiling into some of the old mines, that have been worked two or three time exiling some instances more, and have each time entailed great losses, and are with a special prompts of the merits of the mines. And by your permission I willigms know nothing of the merits of the mines. And by your permission I willigms few facts, so that they may have their eyes opened before parting with the money. If they have as many thousands to spend as some say why not try reground, and not throw away their money? They should be advised by remeable experienced men, who would give truthful reports.

The first mine I wish to mention is known by the name of Cornubla. The mine, I am informed, was first opened by a water-wheel about 60 years ago, at was sunk about 10 or 12 fms, deep from surface, when it proved a fallier, with the party named it the "Place Cost Loss," and it is now known by that name! the end of Roche Rock, and a steam-engine creeted, and the mine sushing this time proving also a failure, the loss being 21,0001. The mine without stopped for several years, but about the year 1859 or 1810 the 60, this time proving also a failure, the loss being 21,0001. The mine will have been thighly recommended, and a Leeds company took it up, and cleared the shaft to the 66 bottom level, and sunk 10 fms, below, making 70 fms, from surface, and to doll this they spent 24,004, and the mine was wound up in the Stannaries Cont.

The above being facts, now what is there to warrant further outlay been highly recommended, but I fear only a short time is now required toped them worthless, and my advice to the party is to prove the mines thatist and see if daything will ever be found worth while.

A Connisus As hem worthless, and my advice to the party is to prove the mines now opened and see if anything will ever be found worth while.

A CORNISHMAN

EAST LANGYNOG LEAD MINING COMPANY.

SIR.—As there exists the greatest disparity of opinion as to the value of mine—or, more properly speaking, as some aver its value is great, and distinct that no real value whatever—would you allow me to enquire, their your Journal, the reason the directors have not circulated among the table holders the opinions of Capts. Walter Eddy and John Kitto, who were speak appointed to inspect and report on the mine? Can it be possible that these well-known practical authorities, after having inspected the mine, expressed an opinion that the directors did not deem it advisable to ask for a report of the captain of the capt

EAST LLANGYNOG MINES.

EAST LLANGYNOG MINES.

SIR,—I have been a constant reader and subscriber to the Journal for my years, and am deeply interested in the mining intelligence contained in the ports. I need nardly say that I am a shareholder in mines, and, therefore, by particular notice of those mines that figure high before the public, as the she mine being cover 180, 001, atcriling. Now, Sir, the absence of the agent's report for many weeks past as to the prospects and value of the lodies at different point the mine has made me feel rather suspictons. I should also be gird to kee when the next samplings take place, and what quantity of ore is likely usent soon to the market.—Ltanfyllyn, Jan. 2.

ONE INTERESTS.

OLD LLANGYNOG, AND WEST LLANGYNOG MINES OLD LLANGINUG, AND WEST LLANGYNOG MINES.
Sin,—Llangynog "Miner" need not be surprised to see the paragraph in he was so much startled at. "Observer" does not say that there is a course in the old mine 3 feet wide, he only states that he is informed so—self the agent, but it is stated by interested parties. As recards the distance tween the two setts (not the iode, as stated by "Miner"), if "Observer's" formation is correct, and he has no reason whatever to doubt, suppose it taken at 250 fathoms between the boundries, according to "Miner," this keef in itself constitutes a good mining sett on the course of the lode.

Oscentry, Jan. 4.

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WHEAL AGAR MINING COMPANY.

WHEAL AGAR MINING COMPANY.

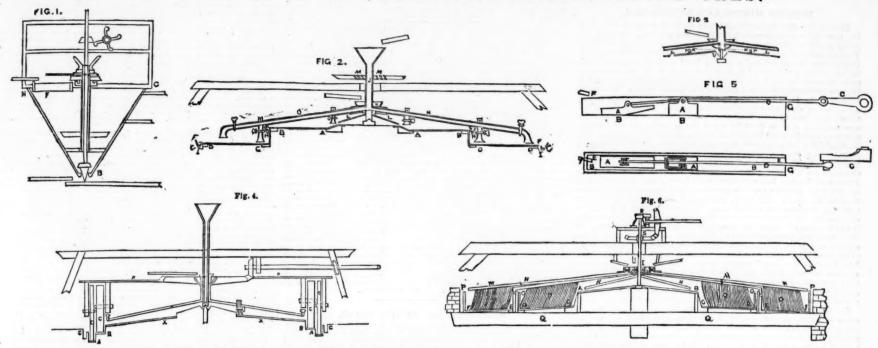
Sin,—I should like to ask the proper authorities, through the Journal, by is we are never favoured with a report in your Mining Correspondence conting underground operations, &c., as this mine? If the late "brilliant veries," &c., are what they have been represented, what is the reason we alearn a little more about them from the manager? Why should the sharehoft this company be kept in the dark from month to month, when other imanagers send up periodical reports to the Journal, and thus help to greatly any anxiety on the part of shareholders at seeing their property tosed up down in the market at the discretion of "bulla" or "bears?" An explain from the proper persons will greatly oblige—

[For remainder of Fordern Mines see to-day's Journal.]

[For remainder of Foreign Mines see to-day's Journal.]

MANUFACTURE OF CRUCIBLES.—The invention of Mr. Gaon CLIFFORD, of Paris, analytical chemist, refers to the composition of the employed in the manufacture of clay and plumbago erucibles, by the of emery, corumnum or other forms of anhydrous alumina to the mixtue employed in manufacturing such crucibles.

## IMPROVEMENTS IN MACHINERY FOR DRESSING ORES.



## IMPROVEMENTS IN MACHINERY FOR DRESSING ORES.

IMPROVEMENTS IN MACHINERY FOR DRESSING ORES.

It has frequently been asserted that in the art of dressing ores the Germans are far in advance of the English miners, and when the extremely low-produce ores from which the former succeed in realising a profit is taken into consideration, it is not surprising that many should have accepted the assertion as an established fact. But Cornish miners have to treat low-produce ores too—especially tin miners, who consider that they have excellent mineral to work upon if it yields from 40 lbs, to 50 lbs, of black tin to the ton of stuff, and of this from 5 to 6 lbs, has been lost in preparing it for sale—so that they have an equal interest in using the best possible dressing machinery within their reach. The improvements recently patented by Capt J. BOYNS, of Botallack, embrace an entire series of apparatus, but the essential feature in the invention appears to be the careful sizing of the ore before submitting it to the other processes necessary for separating the black tin or other metal from the gangue with which it is associated. which it is associated.

for separating it he black tin or other metal from the gangue with which it is associated.

Although each machine is complete in itself, they are specially designed to be used in combination with each other, and so used they are adapted to treat the various ores in all their stages—from the stamping, crushing, or pulverising machinery—to fit them for smelting or market. Capt. Boyns points out that the ore is not only divided into different qualities or sizes at the commencement, but the whole of the orey matter is principally held in suspension in the water until separated from the particles of ore. The ore is, therefore, not so likely to be lost as when the refuse is deposited with the ore in buddles, to be removed by hand labour, and subsequently divided into qualities or sizes by the system of mixing or tozzing now in use. There is also a great saving of expense in the first laying out of the dressing-floors, as the machinery being more expeditious and efficacious, less is required; and as it is always at work dressing the ore during the process of stamping, less water is required than is at present used; and as it wants but little motive-power, the water that contains the ore will usually be found sufficient to work the washing machinery, by each having an undershot water-wheel. Capt. Boyns further claims that, as there is no danger of stripping, to which most modes of dressing have hitherto been found to be prone, there will be much less liability to loss from want of proper attention than has formerly been the case.

The new machinery which is now being extensively manufactured by the Tuckingmill. Foundry Company, Camborne, is not intended to supersede the present mode of breaking, crushing, stamping, or pulverising the ores in the stone as raised from the mine, but merely to deal with the ores after they have been reduced to a proper size, except that a new mode of pulverising "tailings," "roughs," and "burnt leavings" is proposed. Metallic ores are more easily separated from the waste or matrix with whi

the receptacle is full of small holes to cause the ore suspended in the water to flow into the cistern as quietly as possible.

In the centre of the cistern is a tubular axle, with any number of blades attached to it. This is caused to rotate fast or slow, just as the nature of the ore requires, so as to keep the ore suspended in water, until a separation is effected of the different sizes. The heaviest particles sink to the bottom, and are let out through a hole partially closed by a moveable conical plug. By lifting this plug little or much at a time, or working it fast or slow, the supply to the washing machinery is governed. The next sized ore is let out through an opening a little above the middle of the cistern on the opposite side from which it entered, and the fluest size or lightest ore flows over the top: each size is then carried by the water over separate.

chies are convex or concave (the former preferable), the inner one about 14 ft. diameter, the outer one of 24 ft., or in that proportion.

The inclination will depend, to a great extent, upon the size and quality of the matter being treated, but 1 in. to 4 ft., or thereabouts, it a mitable for work face or discovered to the contract of the contract quality of the matter being treated, but 1 in. to 4 ft., or thereabouts, is suitable for very fine ore of low quality; rough ores of better quality will require very much more. The inclination of the outer inclined plane (C, D) should be a little more than the inner one (A, B), as very nearly the same quantity of orey matter suspended in water will have to flow over a larger surface. There must be a sudden drop over the sharp outer edge (E and F) of each circle to permit of the orey deposit being washed off by the application of clear water, and to prevent its running of "trickling" down as it will continue to do into the inner conduit at all times, except when being subjected to the stream of water. The drop at the outer edge of each circle is arranged to permit of the discharge of the water.

The smaller inner incline (A B) is surrounded by a "launder" (H)

arranged to permit of the discharge of the water.

The smaller inner incline (A B) is surrounded by a "launder" (H)

fixed under its outer edge to carry off the ore, but leaving a sufficient is space between the edge of the inner circle and the conduit or launder is space between the edge of the inner circle and the conduit or launder is space between the edge of the inner circle and the conduit or launder is space between the edge of the inner circle and the conduit or launder is all times, except when the stream of water is brought to bear on it. It is all times, except when the stream of water is brought to bear on it. It is all times, except when the stream of water is brought to bear on it. It is all times, except when the stream of vater is brought to bear on it. It is all times, except when the stream any be stationary, with a water is the provided the provided in the provided in the stream of the one time. Arrangements must be made by tap, flushet, small pipes, or other available appliances for conducting the stream of clear water over the machine, and for regulating the quantity; and also for carrying off any surplus supply. One pipe washes off the ore, the other carries off the refuse, the outlets being placed at different distances from the axis. The height at which the water can be brought into the central axis will determine the amount necessary. Arrangements must always be made to secure a sufficient supply, and so managed as to carry off the ore deposited on the strips, with such an amount of force that when brought to bear upon one section at a time it will wash over the first narrow gutter (1) of the outer circle (C, D) into the outer ones (G and H) for further washing if required. The ore from the inner circle may be conducted into the launder by a spout attached to the pipe that carries the water to wash off the ore. By the adoption of this plan of washing ores a series of small dead frames are made available, a constant supply of water containing the ore is allowed to flow over them, while by means of the pipe conveying the stream of clear water the refuse and ores are properly separated, and removed to their respective receptacles without the intervention of any manual labour, while a great deal of time is saved, so that less machinery and water will be required. Several other modifications of this washing machinery are proposed for the treatment of "slimes," "roughs," and other special kinds of material, some being concave, others convex.

The method proposed for crushing or pulverlsing the roughs is shown in Fig. 4. In principle it secreely differs from the Chilian mill, used for grinding and amalgamating silver ores in South America. One or more circular troughs or trenches (A, B) are constructed (say) from 9 to 18 ft. diameter. The bottom of each trench is made

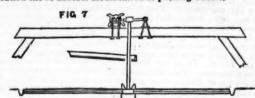
washing machinery is governed. The next size or lightest ore flows an opening a little above the middle of the cistern on the opposite side from which it entered, and the finest size or lightest ore flows over the top; each size is then carried by the water over separate washing machinery adapted for saving it. To effect a good separation, or sizing, of the orea stream of clear water is let down through the tube in the centre to free the rough ore from sline, &c. The depth and size of the cistern depends on the quantity and quality of the ore to be treated, and on the incline of the dressing floors.

The washing machinery receives the ore that comes from the separator, or when thought advisable from the stamping, crushing, or pulverising machinery, or at any stage of the present method of dressing. The ore is washed by a machine with, by preference, two circular inclines (errorneously represented as horizontal—A, B, and circular inclines (errorneously represented as horizontal inclines (errorneously represented as horizontal inclines (errorneously represented as horizontal incl

the water and finely-crushed ore to where it may be further washing.

When the rough ores require to be reduced to a very fine powder the machinery shown in Fig. 5 is used. A, B are slabs of iron, ateel, granite, or other hard material made to work backward and forward in a trough (E) by means of a crank (C) and a sweep-rod (D). The slab of iron rises and falls a little with the motion of the crank, and to secure this motion the slab must take its motion direct from the to secure this motion the slab must take its motion direct from the to secure this motion the slab must take its motion direct from the crank, as shown. When it rises the water carries the roughs under it, and as it falls, moving forth and back, and from side to side, by separate motions, it grinds the rough ore to a very fine powder. The roughs are carried into a trough at one end (F) by the water, and when reduced to a proper size are allowed to run out at the opposite end (G) for further dressing. Very hard rough ores may be previously heated in a furnace by means of an iron tube arranged somewhat like that of Oxland and Hocking's calciner.

The operation of "packing" has hitherto has been effected by



The improvement of our existing appliances in mining, and the saving of the mineral new so extensively going to waste, is certainly the most important task before the scientific miner, in order to enable as to maintain our recent formishing the contribution of the c the most important task before the scientific miner, in order to enable us to maintain our present flourishing position, or, on the other hand, to tide over another period of depression, should such again unfortunately occur. A careful examination of the descriptive details and diagrams of the several machines embraced in the invention can leave no doubt that Capt. Boyns has given every portion of the process the fullest consideration, and studied to devise apparatus exactly calculated to accomplish the desired object; whilst his appointment of the Tuckingmill Foundry Company as his sole manufacturers will prevent the smallest risk of failure through inattention to quality of material and work manship. The experimental set now being erected at Dolrial and workmanship. The experimental set now being erected at Dol-coath Mines will very shortly (probably early in February) be ready for practical working, when, as it is intended to invite public inspection, all interested in the economic treatment of ores will have an oppor-

connection forming the points of junction. Secondly, the novelty consists reducing the space of the return or bottom flue undermeath the boiler so as to tract the radiation of heat and make it more thoroughly effective in the

#### FOREIGN MINING AND METALLURGY.

The last few days have brought with them no event of very striking novelty in connection with the French coal trade. Attempts are being made to stimulate the production of coal in the North of France, and there are rumours of an intention to establish new workings in most of the collieries of the Nord and the Pas-de-Calais. Serious works are further, it is stated, likely to be undertaken in order to ascertain the importance of the coal bearings discovered at the commencement of this century in the Haute-Marne. The shareholders in the Light Colliery Company have desided unprincipally. the commencement of this century in the Haute-Marne. The share-holders in the Lievin Colliery Company have decided unanimously upon sinking a pit upon the Chaudron system. It is, perhaps, fortunate that some months must elapse before the production of these new workings can be brought upon the markets, as the existing means of transport are insufficient for the present production. The Northern of France Railway Company has been obliged to suspend for some days the conveyance of coal to Paris, excepting only what is required for the service of the company itself and the Parisian Company for Lighting and Heating by Gas. The Orleans and the Eastern of France Railway Companies have given rigorous orders to collect the greatest possible number of coal wagons, and forward them to the mines. The Paris, Lyons, and Mediterranean Railway Company continues to collect upon its devoted head a torrent of complaints. To complete the prevailing embarrassments, navigation Company continues to collect upon its devoted nead a torrent or complaints. To complete the prevailing embarrassments, navigation in the interior of France has been interrupted at several points. A Bordeaux even, the movements of ships have been intercepted by ice, and the arrivals of English coal for the important industrial group of the South of France were suspended in consequence for some days. This difficulty has now, however, disappeared. Upon the Seine na-vigation has been much interrupted by the sluggishness with which

vigation has been much interrupted by the sluggishness with which the reparation of works of art injured during the war has been proceeded with. Under all the circumstances, it is not at all surprising to find the price of coal supported with firmness in France.

The forgemasters and industrials of the North of France are necessarily watching with anxiety the debates in the National Assembly upon the taxation of raw materials. Notwithstanding this anxiety, the construction of some new blast-furnace or other is being supplied forward slipnest every week. Rumours as to the setablish. pushed forward almost every week. Rumours as to the establish-ment of blast-furnaces at Longwy and in the environs of Nancy and ment of blast-furnaces at Longwy and in the environs of Nancy and Toul are acquiring a more serious consistency every day. The house of Dupont and Dreyfas has also decided on establishing a new forge at Frouard. The last adjudication for pipes for the city of Paris has officially established the advance in prices which those articles acquired last year. The Fourchambault works demanded an increase of 15 per cent., and the Pont-au-Mousson one of 19 per cent. Under these circumstances the adjudication did not take place, as the municipal authorities of Paris did not feel disposed to concede any advance, although they may ultimately have to do so. Prices have been firmly maintained for all articles. First-class merchants' iron, coke made, has brought 81. 12s. per ton, ordinary plates have made 111. 12s. per ton, and in some cases 121. per ton. In the Haute Marne orders have rather fallen off of late.

The state of the Belgian iron trade appears to be becoming better every day, and it is stated that the most advantageous orders are

The state of the Belgian iron trade appears to be becoming better every day, and it is stated that the most advantageous orders are being refused on all sides. Ordinary rails without guarantee have been dealt in at 7l. 12s. per ton, but these rates only apply to isolated cases. It is not astonishing that such a state of things should encourage industrials to increase their production, and forges and workshops are accordingly rising from the ground as if by enchantment. MM, Germain and Wilmar are about to resume the production of railway trucks at Couillet. Contracts for locomotives to be delivered in July have been offered, but have not been received at all eagerly, all the Belgian works being fully employed until that month. An all the Belgian works being fully employed until that month,

in July have been offered, but have not been received at all eagerly, all the Belgian works being fully employed until that month. An adjudication for 44 locomotives for the Belgian State lines has taken place this week. A Luxembourg industrial has sued the Eastern of France Railway Company for damage sustained by him in consequence of the insufficient supply of trucks upon that system. There is no great change to note in the Belgian coal trade. Orders are numerous and pressing in the Charleroi district, and the rise in prices has become more decided. There is no sensible improvement to report in the transport and navigation question.

These has been an exhibition at Pesth of plans for a great bridge over the Danube, across Isle Marguerita. Among the competitors may be mentioned MM. Finet Charles and Co., MM. Cail and Co., MM. Gouin and Co., the Fives Lille Company, MM. Klein Brothers, the Sclessin Company, M. Ruppert, construction director of the Austrian State Railways, and several others. A prize of 500% is to be given to the plan declared to be the best, but the Austro-Hungarian Government will not necessarily adopt it. The Dutch Government is continuing the execution of the bridges and viaduets which are to put the towns of La Haye. Amsterdam, and Rotterdam in direct communication with Belgium and Germany. Scarcely has the great Moerdyk bridge been completed than a contract has been let for a viaduet of 37 openings, which is to traverse the town of Rotterdam. Beveral Belgian, French, Dutch, and English firms competed for this great work. The John Cockerill Company did not submit a complete tender, but such a tender was delivered by MM. Eugene Rolin and Co., of Braine-le-Comte, who required 47,00%. The Prince of Orange Company tendered at 45,775%, and the Butterley Company 444,740%. The difference not being very material, the Dutch Government, wishing to encourage the national industry, decided to entrust the work to the Prince of Orange Company. The iron required will, it is stated, be principally obtained

gots and tough English have teached at the German markets pre-core minerals, pure standard, 90% per ton. The German markets pre-sent much the same aspect as the English and French; there is rather sent much the same aspect as the English and French; there is rather more business passing upon them than is usually observed at this period of the year, and greater firmness is noticed in prices. The tin markets have been rather irregular. Banca and Straits, delivered at Havre or Paris, have made 1601.; and English, delivered at Paris or Rouen, 1641, per ton. Upon the German tin markets the article has been well maintained. French lead, delivered at Paris, has brought 191. 8s.; ditto, delivered at Havre, 191. 4s.; and English, delivered at Havre, 191. 8s. per ton. German and Belgian lead have completely made default upon the French markets. Upon the German lead markets there has been no great variation to notice. At Rotterdam, Stoberg and Eschweiler have made 11 fls.; and German lead of various marks, 102 fls. There has been a slight advance in zinc upon the French markets. Thus, Silesian zinc, delivered at Havre, has made 241, per ton at Paris; other good marks, delivered at Havre, have brought 244, per ton, and with delivery at Paris 254, per ton. At Hamburg the article has been rather neglected.

MINING ON THE PACIFIC COAST.—The accounts that are being received of the various mines in the different sections are all that could be wished for, developments having lately been made in the Golden Charlot that will, no doubt, soon cause this to be again a dividend paying mine. The mines in the Ely district are contributing their regular amount of buillon, while those upon the Comstock are daily making developments confirming the existence of bodies of ore in the other mines than those already discovered. The prospects for the coming year to be a successful one are most flattering, and it promises to be the most successful of any in the mining era.—BELOHER: The shaft is re-timbered within 290 ft. of the surface. The incline is down 95 ft. below the 850. The east drift from the 900 level is in 46 ft., the face showing low gade ore, but improving as they go cast. The silf floor on 1100 level is 135 ft. in length; the face is 60 ft. in width, and in very fair ore, assaying \$70 to \$100. The south drift is 1250 ft., and still in good ore. The crease-out from this polet is in 10 ft.; the face of it hard porphyry. The pay streak at this point is 15 ft. in width, and will assay \$80 on an average. The east consecut from south winne, 30 ft. down, is in 25 ft.; the face shows good ore, showing thus far 13 ft. of gold, which assays \$100. The north winner is down 34 ft., and in good ore. The rise is np 44 fc. as the lovel of the region of the winner of the stream of the stre with gold and silver. Under the pircumstances it is reasonable to suppose that an immesse body of rich ore crists between the 4th and 8th levels, south of the sharf. I had one of the first pieces that was broken out of the vein assayed. The

result was—gold, \$93-02; silver, \$272-83: total, \$365-85 per ton. The verla on the 5th level is forming as if it might be permanent, and the ore is extra rich.—6 Chown Point: The south drift on the 1200 level is being run into the west casings of the vein, first skirting the ore. Scarcely an assay for the past two days from this rock has gone below \$200, and very many have reached \$500: It is much superior to any ore found on the 1100 level, and gives promise to show an extraordinary yield of ore and buillion. The east winze, on the 1100 level, is down to the 1200; the distance from the Beicher line where it intersects the 1200 level is 100 ft.; the average assays from the winze go from \$100 to \$150 per ton. The stopes between the 1000 and 1100 levels yield their usual supply of ore, which mills from \$30 to \$35 per ton. The grade of the ore on the 1000 level will mill from \$25 to \$30 per ton. On the 900 level here is a vasa amount of low-grade ore that will pay for milling and mining, and about 60 ft. from the Belcher line adjoining the east casing of the vein there has been cut a body of ore 7 ft. In width that will mill from \$35 to \$40 per ton; this body increases in the winze going south, and on the Belcher line shows a width of 14 ft. For the week ending Dec. 1, 1978-4 tons of ore were extracted; estimated mill value, \$55,705-67.—CHOLLAR: Report for week ending Dec. 2: Oreckracted, 520 tons; ore forwarded to mills, 312 tons 800 lbs. Average assay value of the ore mined \$36-40 per ton. The bad condition of the roads interfered considerably with the transportation of ore to the mills. The dumps are all filled; the 520 tons was the result of the three days' extraction. As soon as the dumps are reliveed ore extracting will be resumed. Prospecting at both stations (new shaft) is being rapidly advanced. The drift at 500 station has clay in the face. In the ore producing portions there are no changes. Builton shiped, \$11,065-47. A dividend of \$1 per share, aggregating \$28,000, is payable on the 11th. Total receipt

#### MINING ON THE PACIFIC COAST.

tension, on the 223 level."—Meadow Yalley: Total thus far received on the November account, \$140,192.—San Francisco Stock Report.

MINING ON THE PACIFIC COAST.

CALIFORNIA.—We were shown by the President of the Kennedy Mining Company a piece of quarte rock, weighing 3 or 4 lbs., taken from the Kennedy Mine at a depth of 500 ft., literally filled with free gold and rich gold-bearing sultain the president of the control of the president of the president of the control of the control

### FOREIGN MINES.

PESTARENA UNITED (Gold).—Telegram, dated Pallauza, Jan. 3: Return of gold for December 224 ozs., from 543 tons of ore. Very hard frost.

KANSAS (Telegram).—The main shaft very much improved in depth; looking well; down 1 fathom since last reported; our net return this month will be \$5000.

ST. JOHN DEL REY.—Morro Velho, Nov. 29: Morro Velho produce, second division of November, nine days, 3592 oits.; yield, 2522 oits. per ton. Gaia produce, second division of November, nine days, 360 oits.; yield,

ton. Unia produce, second division of November, nine days, 36 oits.; yield, 0-910 oits, per ton. The above is the produce of the Gala stamps working during the day ouly. The water is being lowered in the old mines at the rate of 294 ft. per month. We are preparing to bring the Bahu pumping-wheel to bear on the new shafts.

29¼ ft. per month. We are preparing to bring the Bahu pumping-wheel to bear on the new shafts.

DON PEDRO.—Nov. 29: Produce: Weighed to date, 6584 oits.; estimate for month, 8000 oits.—General Operations: The points in the mine whence gold is now being obtained, on the whole, are not looking so well as at the end of last month. No. 8, which was disturbed by fissures during the early part of the current month, is now more settled, and box work again being derived therefrom. No. 5 line, in curve, is at present poor, and No. 6, descending, has become pror, but yields fair box work. Encouraging samples, the captain states, have been obtained from a new discovery of lode in Bryant's level, and preparations are being made for exploring this important section at the horizon of Alice's level, where favourable results are anticipated. Repairs to Vivian's shaft from Alice's to add thevel will be completed in December, when stopping in bottom of the mine will be resumed. At the wheel pit a good deal of trouble was experienced a few days since, through the ground scaling away, but the side having been well supplied with timber the masorry is now going shead, and no further hindrance is apprehended. The frames, &c., for supporting the wheel are at present almost at a standstill for want of timber. For mine purposes, also, the supply is seantly, but the carriers will, we are in hopes, very shortly be gip putting in enough for all our requirements.

GENERAL BRAZLIAN.—Nov. 28: At St. Anns the shallow adit No. 1 is still wet and difficult to handle; no alteration for the bester has yet taken place. The shallow adit, No. 2, is under suspension. At the old adit the level driving north from small shaft has been extended 4 feet, the force were then removed to drive a level south from smale shaft; 18 feet has been driven, but nothing yet has been dicovered. We have hands now employed clearing

he old workings; when this was last attempted the sinks were very wet, and rentilation bad; now the places are dry and well rentilated. At Labira the middle adit has been suspended, and force removed to clear the old workings at the old adit at St. Anna. The aballow adit is without alteration since last advised. Moore's shaft is propressing satisfactorily; the ground is dry jacotings and favourable for sinking. At Soura's the vein dips at an angle of about 20°, and nearly continuous with the Corrego; at first, after intersecting the vein, we followed it down the valley where the level is about 20 feet under the surface, the rain water has soaked through, accumulated at bottom, and hindered progress; we then commenced from the intersection or cross-cut No. 1, to drive up the valley, and have extended on the vein 10 fathoms; it has not yielded box work, but is producing good stamp work daily—some days better than others. The cross-cut No. 2 has been extended 13 fathoms; the level seems to be in the locality of the vein, but it has not yet been met with. The old stamping-mill (10 heads) has worked 67 hours, stamped 9 tons of jacotinga, and produced 78 oits, gold; we have at surface about 100 tons ready for stamps, but whether it is so rich as that aiready treated remains to be proved. The stamping at St. Anna was set to work on the 22d, inst., and called Foster's; we have at surface about 150 tons for the stamps, chiefly debris from clearing old levels, &c., and it is not rich. Nearly all the carpenters and masons have been employed at St. Anna, stamping-mill, wash-house is finished the others will follow. The old mill at Itabira; when wash-house is finished the others will follow. The old mill at Itabira; so thad make, and does but little duty.

it is so fleh as that aiready treated remains to be proves.

Anna was set to work on the 22d, inst., and called Poster's; we have at airfact Anna was set to work on the 22d, inst., and called Poster's; we have at airfact is not rich. Nearly all the carposters and masons have been employed at \$1 and \$2 and \$2

SOLE AG

BOOT

INVE

MACH

WORKS

OBTAINING CREMICAL PRODUCTS.—Messrs, KON'GS and HENDERSON, of Maryhill and Glasgow, propose that a mixture of common saltand peroxide of iron shall be placed in a muffle-furnace and heated to dull redness. Over the heated mixture sulphurous acid is passed, and dry air, these mixed gases being heated by preference by passing them through flues, or chambers, kept at a dull red heat. The common salt is gradually converted into sulphate of soda, whilst chlorine is given off. When hydrochloric acid is wanted, a mixture of air and steam is used instead of the dry air. The proportion of oxide of iron in the mixture may be reduced, and pyrites in coarse powder may be substituted, yielding the required sulphurous acid, the mixture being heated and acted upon by dry air, or by air and steam, with warm or hot water, and crystallising, salting out, or evaporating to dryness. The hydrochloric acid is condensed in the usual way. Burnt cuprous pyrites may be used instead of unere oxide of iron, allowance being made for the proportion of sulphur usually remaining in it. Unburnt pyrites containing coper may also be used. When copper and similar metals occur, instead of trying to obtain all the copper in solution with the sulphate of soda, the mixture signated until all, or nearly all, the copper or iron present is rendered insoluble in water. If after continue heating there is still a small amount of metal soluble, it is made insoluble during the extraction of the sulphate of soda by the addition of lime or other suitable base.

IMPROVEMENTS IN TRANWAYS.—In carrying out the invention of OBTAINING CHEMICAL PRODUCTS.—Messrs, KONIGS and HENDER-

IMPROVEMENTS IN TRAMWAYS.—In carrying out the invention of Mr. John Pace, of Glasgow, the part of the structure on which the whoels are to run is in one modification, a wrought-iron or steel rail, which in cross-section is shaped like the letter Li inverted (7) for the right-hand, and the reverse (7) for the left-hand rail. This rail is in each case fixed on a continuous cast-iron or malleable iron sleeper, having two projecting ribs along the top, and the middle space between the ribs being dovetailed in cross-section to receive the vertical web of the rail, together with iron keys, by which it is secured. By another modification, a pair of the rails are used at each side, being fixed by iron wedge keys in grooves or jaws, formed in the middles of the tops of (continuous) oresiron or malleable iron sleeper blocks. In applying pairs of keys for accuring railway rails in their chairs, one of each pair assumes the form of a gib, or if made with lugs engaging on the sides of the law of the chair, so as to hold fit in position whilst the other key is being driven into its place. The the hara are notched to fit the bottoms of the rails, and the rails enter down into the notches, and so lock the tie bars in position. Or comparatively broad the place and fixed to the two pairs of ends.

SHAPING METALS—SOMETHING NEW.—In a process lately pro-

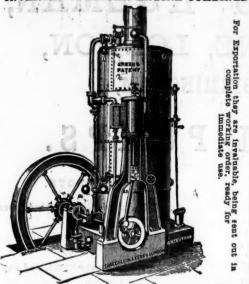
SHAPING METALS—SOMETHING NEW.—In a process lately proposed for shaping metals a mould is made in sections to sait the article required, and a sheet of metal is placed in it, after which a cover is clamped on to the mould, and water pressure is conveyed to the interior by a pipe, whereby the metal is expanded to the counterpart of the mould.

LINK, C. 1879

SUPPLEMENT TO THE MINING JOHNAL

## GREEN'S PATENT BOILERS.

VITH INVERTED CYLINDER ENGINE COMBINED



e Engines and Bollers are constructed in an exceedingly substantial le manner, every part being easy of access, consequently can be readily of and managed; they are fitted with governors, equilibrium throttle by valve, safety valve, feed pump, water and steam gauges complete, dation plate answers the purpose of feed water tank, in which the heated before passing into the boller, and also of an ash-pit, and no k or foundation is required.

Dowards of 600 of these Engines and Bollers are now at work, giving disfaction.

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IT DOES NOT GET OUT OF ORDER.
SPECIALLY ADAPTED FOR SINKING AND MINING PURPOSES.

PROGRESSES through Aberdeen granite at the incredible rate of 10" per minute.

SAVES £5 a day as compared with hand labour, independent of the enormous saving effected in the general expenses, such as Pumping, Ventilation, Interest of Capital, &c., from the fact of the "put out" being increased four-fold.

creased four-fold.

DRILL POINTS.—The saving in steel alone
is considerable. One drill will go through
20 feet of Aberdeen granite without sharp-

ening. received and executed solely by-

Messrs. CHAS. BALL & CO., NEW BRIDGE STREET, E.C., LONDON, ENGINEERS, CONTRACTORS, AND GENERAL MERCHANTS.

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MANOHESTER,

SOLE AGENTS FOR { "S. B. HÆMATITE," | PIG IRON; "CLAY LANE," | PIG IRON; "CLAY LANE," | AGENTS FOR JACKSON, GILL, AND CO., IMPERIAL IRONWORKS, NEAR MIDDLESBOROUGH; DARLINGTON WAGON COMPANY, DARLINGTON.

SCOTCH, HEMATITE, STAFFORDSHIRE, DERBYSHIRE, FOREST OF DEAN, COLD BLAST AND REFINED PIG IRON, PUDDLED BARS AND BAR IRON, STEEL, SPELTER, TIN, COPPER, LEAD, SHEETS, ORES, &c.

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MALAM AND COMPANY,

ENGINEERS,

INVENTORS AND PATENTEES OF PORTABLE AND STA-TIONARY GAS APPARATUS,

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CONTRACTORS for GAS, WATER, SUGAR WORKS, and DISTILLERIES

most improved principles.
and specifications furnished on application.

Also, INVENTORS of APPARATUS for GENERATING GAS from DEAD and other OILS, applicable to every description of FURNACES, FLUES, &c.

## IMPROVED APPLICATION OF WATER POWER. THE TURBINE.

Mac Adam, Brothers, & Co.,

SOHO FOUNDRY, BELFAST,

After twenty years of experience, have brought their Improved TURBINE to great perfection. It is applicable to all practicable heights of fall, giving much greater power from the water than any other kind of water-wheel.

on low falls it has the great advantage of not being impeded

On low falls it has the great advantage of not being impeded by floods or back-water.

It is particularly well adapted for situations where the quantity of water is contable, and where all other wheels fail. Its motion is extremely regular, and, when desired, a Governor can be applied effectively.

This Wheel is at work in a great many places, to which reference will be given.

MACHINE-ORNAMENTED GLASS, METAL, WOOD, &c.

EDWARD LEE AND CO.,

INVENTORS and SOLE PROPRIETORS of the PROCESS for ORNAMENT-ING in GOLD and COLOURS on all surfaces, shapes, and sizes. It is superior to, and in many cases impossible to be done by, skilled and artistic hand labour. The process is peculiarly adapted for supersyding glass writing in all its purpose, by its superiority, cheapnese, and durability.

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AWARDED TWENTY GOLD AND SILVER FIRST-CLASS PRIZE MEDALS.

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TO MINERS, IRONMASTERS, MANUFACTURING CHEMISTS, RAILWAY COMPANIES, EMERY AND FLINT
GRINDERS, MCADAM BOAD MAKERS, &C., &C.



For the Parys Mining Company,
H. R. Marsden, Esq. JAMES WILLIAMS.

H. R. Marsdon, Esq. JAMES WILLIAMS.

Ecton Emery Works, Manchester.—We have
used Blake's patent stone breaker made by you,
for the last 12 months, crushing emery, &c., and
it has given every satisfaction. Some time after
starting the machine a piece of the moveable laws
about 20 ibs. weight, chilled cast-irrn, broke off,
and was crushed in the laws of the machine to
the size fixed for crushing the emery.

Thos. Goldsworthy & Bons.

Alkali Works, near Wednesbury.—I at first
thought the outlay too much for so simple an
article, but now think it money well spent.

Welsh Gold Mining Company, Dolgelly,—The

Welsh Gold Mining Company, Dolgelly, -The stone breaker does its work admirably, crushing the hardest stones and quarts. WM. DANIEL.

Our 15 by 7 in. machine has broken 4 tons of hard whinstone in 20 minutes, for fine road me-tal, free from dust. Messrs. ORD and MADDISON, Btone and Lime Merchants, Darlington.

Etone and Mills settlement the set of my machines breaks from 100 to 120 tons of limestone or ore per day (10 hours), at a saving of 4d, per ton.

— JOHN LANGASTER.

Ovoca, Ireland.—My crusher does its work most satisfacturily. It will break 10 tons of the hardest copper ore stone per hour.

WM. G. ROBERTS.

General Framont's Mines, Catifornia.—The 1s
by 7 in. machine effects a saving of the labour of
about 30 men, or §75 per day. The high estimation in which we hold your invention is shown by
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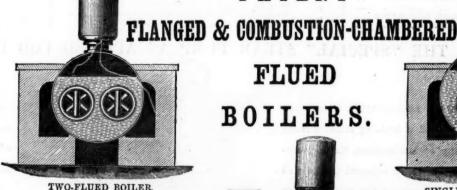
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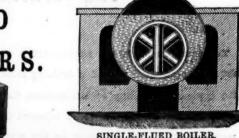
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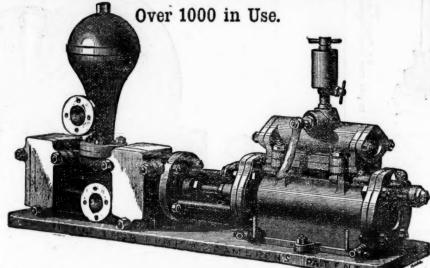
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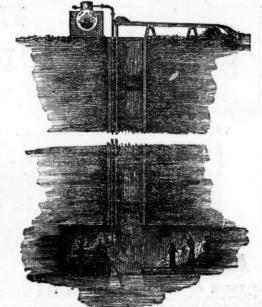
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### THE "SPECIAL" STEAM PUMP AS APPLIED FOR DRAINING MINES.

The arrangement in the accompanying illustration shows an economical method of draining mines without the expense of erecting surface-engines, fixing pumprods, or other gearing. A boiler adjacent to the pit's mouth is all that is necessary on the surface; from thence steam may readily be taken down, by means of a felted steam-pipe, to connect the pump with the boiler. The pump may be placed in any situation that may be convenient for working it, and connecting the steam, suction, and delivery pipes.

These engines can be fixed and set to work in a



comparatively short time, and also at a very small outlay. They are used in large mines as auxiliary engines, and will be found invaluable adjuncts in all mining operations.

To estimate the quantity of water to be raised by any given size of pump refer to the tabulated list below. It is recommended to use long-stroke pumps where the height exceeds 100 ft., so that the largest result may be obtained with a minimum wear and tear of the pump pistons and valves. The pumps are provided with doors for ready access to all working parts.

## PRICES OF THE "SPECIAL" STEAM PUMPS.

													-								1
Diameter of Steam Cylinderinches	21	3	4	4	6	6	6	. 7	7	7	- 8	8	8	8	10	10	12	12	14	16	26
Diameter of Water Cylinderinches	11	11	2	4	3	4	6	5	6	7	4 .	6	7	8	6	7	8	10	8	7	61
Length of Strokeinches	6	9	9	12	12	12	12	12	12	12	12	12	12	18	12	12	18	24	48	24	72
Strokes per minute	100	100	70	50	50	50	50	50	50	50	50	50	50	35	50	50	35	-	-	-	-
Gallons per hour	310	680	815	3250	1830	3250	7330	5070	7330	9750	3250	7330	9750	13,000	7330	9750	13,000	-	-	-	-
PRICE	£10	£15	£20	£35	£30	£40	£47 10	£50	£52 10	£57 10	£50	£55	£65	£85	£70	£80	£100	-	-	-	-

IF BRASS LINED, OR SOLID BRASS OR GUN-METAL WATER CYLINDERS, WITH COPPER AIR VESSELS, EXTRA, ACCORDING TO SIZE.

Any Combination can be made between the Steam and Water Cylinders, provided the Lengths of Stroke are the same, thus—8 in. Steam and 3 in. Water, or
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